TM-U950/U950P

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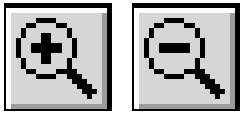

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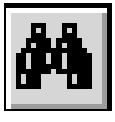

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EPSON®

ESC/POS™
Information Manual

Guide to
TM-U950/U950P

SEIKO EPSON CORPORATION

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The programming examples in this manual are provided for the sole purpose of illustrating the functions of the products. Seiko Epson Corporation makes no warranty, either expressed or implied, as to their reliability and appropriateness for other uses.

ESC/POS™ Information Manual
Guide to TM–U950/TM-U950P
9511-03

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Introduction

ESC/POS

The market for store automation equipment is changing rapidly with the widespread introduction of POS (point of sale) terminals. These terminals are now appearing even in small retail stores and specialty shops. They occupy a secure position in the range of applications available for personal computers.

As more personal computers come to be used as POS terminals, the demand for matching standardized peripheral devices is expected to rise. At present, however, many of the competing POS terminal printer displays on the market employ mutually incompatible command sets. This imposes limits on the expandability and range of applications possible with PC-based systems. There is a need for a new command set designed to provide the expandability and universal applicability demanded by the market.

To meet this need, Seiko Epson Corporation proposes the adoption of a newly developed command set to standardize POS terminal peripheral devices: ESC/POS (Epson Standard Code for Point of Sale).

The aim when developing ESC/POS was to create a set of control codes that could be used to operate any output device connected to a POS terminal. These new codes are intended to replace the mutually incompatible command sets previously in use.

TM/DM series models already support ESC/POS, and they have been evaluated highly in the marketplace.

Seiko Epson Corporation plans to produce new models in the TM/DM series offering ESC/POS support and to continue to work for the standardization of the entire POS environment to promote the dissemination of ESC/POS.

About This Manual

- **Chapter 1** contains a table of supported commands, descriptions of all the commands arranged by function with program examples and print samples, and character code tables.
- **Chapter 2** contains an example showing several commands used in a program to combine receipt and journal printing.
- **Chapter 3** contains a table of the commands listed by function type and a table showing which commands are supported by various EPSON printers.

Features

The TM-U950 and U950P are high-quality POS printers that can print on slip, journal, and receipt paper. The printers have the following features:

- ❏ Wide slip paper capability (maximum characters per line: 88 with 7 × 9 font).
- ❏ Interface connector within the printer's external dimensions.
- ❏ High throughput using bidirectional, minimum distance printing.
- ❏ Precision paper feeding at 1/144 inch.
- ❏ Selectable receive buffer size (32 bytes or 2K bytes).
- ❏ Slip ejection sensor.
- ❏ Command protocol based on the ESC/POS™ standard.
- ❏ ASB (Automatic Status Back) function that automatically transmits changes in printer status.
- ❏ EPSON intelligent module connection.
- ❏ EPSON customer display series connection.
- ❏ Optional Magnetic Ink Character Recognition (MICR) reader that enables the printer to read and process MICR characters in addition to printing endorsements.

Options and Accessories

- ❏ Magnetic Ink Character Recognition (MICR) reader (factory installed option).
- ❏ Direct connection display modules, DM-D102 and DM-D203.
- ❏ EPSON power supply unit, PS-150 (not required when the TM-U950/U950P is connected to an intelligent module).
- ❏ EPSON ribbon cassette, ERC-31.

Specifications

- ❏ Printing specifications

Printing method:	9-pin, serial impact dot matrix
Printing speed:	200-311 CPS
Number of printable columns:	30/40 (receipt, journal), 66/88 (slip)

- Character specifications

  Character fonts: 9 × 9/7 × 9
  Character pitch: 12.5/16.7 CPI
  Character size: 1.6(W) × 3.1(H) mm/1.3(W) × 3.1(H) mm
  Character sets: ASCII: 95 characters
  International: 32 characters
  Extended graphics: 128 characters × 6 pages

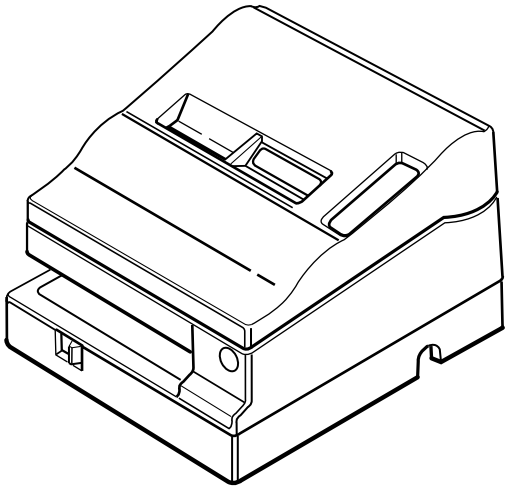
- Paper specifications

  Paper size: Paper roll: 69–70(W) mm × 83.0 mm diameter
  Slip paper: 70(W) × 70(L) mm – 210(W) × 297(L) mm

  Thickness: Paper roll: 0.06 mm – 0.09 mm
  Slip paper: 0.09 mm – 0.36 mm

- Interface: RS-232 (serial interface)
  or
  IEEE 1284 (parallel interface)

- Data buffer: Maximum approximately 2K bytes



Contents

Chapter 1
Command Descriptions

Following this table are all the commands organized by function and described with program examples and print samples.

Supported Commands

Command	Name	Function type	Page number
LF	Print and line feed	Print	1-4
FF	Print and eject slip paper	Print	1-5
CR	Print and carriage return	Print	1-4
RS	Journal tab	Print position	1-23
DLE EOT	Transmit real-time status	Status	1-32
DLE ENQ	Real-time request to printer	Miscellaneous function	1-48
ESC SP	Set right-side character spacing	Character	1-9
ESC !	Select print mode(s)	Character	1-14
ESC $	Set absolute print position	Print position	1-23
ESC %	Select/cancel user-defined character set	Character	1-10
ESC &	Define user-defined characters	Character	1-10
ESC *	Select bit-image mode	Bit image	1-25
ESC –	Turn underline mode on/off	Character	1-15
ESC 2	Select 1/6-inch line spacing	Line spacing	1-8
ESC 3	Set line spacing	Line spacing	1-8
ESC <	Return home	Mechanism control	1-38
ESC =	Select peripheral device	Miscellaneous function	1-47
ESC ?	Cancel user-defined characters	Character	1-10
ESC @	Initialize printer	Miscellaneous function	1-45
ESC C	Set slip paper eject length	Line spacing	1-8
ESC E	Turn emphasized mode on/off	Character	1-15
ESC G	Turn double-strike mode on/off	Character	1-15
ESC J	Print and feed paper	Print	1-5
ESC K	Print and reverse feed	Print	1-6
ESC R	Select an international character set	Character	1-12
ESC U	Turn unidirectional printing mode on/off	Mechanism control	1-39
**ESC **	Set relative print position	Print position	1-24
ESC a	Select justification	Print position	1-24
ESC c 0	Select paper type(s) for printing	Printing paper	1-20

Command	Name	Function type	Page number
ESC c 1	Select paper type(s) for command settings	Printing paper	1-21
ESC c 3	Select paper sensor(s) to output paper-end signals	Paper sensor	1-19
ESC c 4	Select paper sensor(s) to stop printing	Paper sensor	1-18
ESC c 5	Enable/disable panel buttons	Panel button	1-17
ESC d	Print and feed ***n*** lines	Print	1-6
ESC e	Print and reverse feed ***n*** lines	Print	1-7
ESC f	Set slip paper wait time	Printing paper	1-22
ESC i	Partial cut (one point left uncut)	Mechanism control	1-39
ESC m	Partial cut (three points left uncut)	Mechanism control	1-39
ESC o	Stamp	Mechanism control	1-39
ESC p	Generate pulse	Miscellaneous function	1-47
ESC t	Select character code table	Character	1-13
ESC u	Transmit peripheral device status	Status	1-35
ESC v	Transmit paper sensor status	Status	1-35
ESC z	Turn parallel printing mode on/off for receipt and journal paper	Character	1-16
ESC {	Turn upside-down printing mode on/off	Character	1-16
GS ENQ	Transmit real-time printer status	Status	1-36
GS *	Define user-defined bit image	Bit image	1-26
GS /	Print user-defined bit image	Bit image	1-26
GS E	Select print speed and head energizing time	Miscellaneous function	1-45
GS I	Transmit printer ID	Miscellaneous function	1-46
GS P	Set horizontal and vertical motion units	Miscellaneous function	1-44
GS a	Enable/disable Automatic Status Back (ASB)	Status	1-28
GS r	Transmit status	Status	1-31

The following commands are supported only by the TM-U950/U950P with the optional Magnetic Ink Character Recognition (MICR) reader. (The MICR reader is a factory-installed option.)

Command	Name	Function type	Page number
DLE EOT BS	Transmit real-time MICR status	Status	1-37
FS a 0	Read check paper	MICR	1-41
FS a 1	Load check paper to print starting position	MICR	1-43

Command	Name	Function type	Page number
FS a 2	Eject check paper	MICR	1-43
FS b	Request retransmission of check paper reading result	MICR	1-42
FS c	MICR mechanism cleaning	MICR	1-41

Using Bit Value Tables

For each command that has a complex method of determining the variable ***n***, there is a table showing how to calculate the variable in three numbering systems: binary, hexadecimal, and decimal.

When you look at the table, first find the value of each component of the variable. Then add the values of the components together to determine the value of the variable ***n***.

For example, here is how you would use the table below, which sets the print mode, to combine double height, double width, and underline. In the table, you see that bit 4 on (or hex 10 or decimal 16) turns on double height, bit 5 on (or hex 20 or decimal 32) turns on double width, and bit 7 on (or hex 80 or decimal 128) turns on underline mode.

To combine all three, turn on bits 4, 5, and 7, which is 10110000 in binary. Or you can add the hex values 10, 20, and 80 for the hex sum of B0, or you can add the decimal values 16, 32, and 128 for the decimal value of 176.

Therefore, you send the following to turn on double height, double width, and underline, depending on the numbering system used:

ASCII	ESC	!	*n*
Hex	1B	21	B0
Decimal	28	33	176

Bit	Off/On	Hex	Decimal	Function
0	Off	00	0	Character font 9 x 9 selected.
	On	01	1	Character font 7 x 9 selected.
1, 2	—	—	—	Undefined.
3	Off	00	0	Emphasized mode not selected.
	On	08	8	Emphasized mode selected.
4	Off	00	0	Double-height mode not selected.
	On	10	16	Double-height mode selected.
5	Off	00	0	Double-width mode not selected.
	On	20	32	Double-width mode selected.
6	—	—	—	Undefined.
7	Off	00	0	Underline mode not selected.
	On	80	128	Underline mode selected.

Note that the program examples throughout this chapter use decimal numbers, but binary, decimal, and hexadecimal numbers all have the same printing results.

Print Commands

The TM-U950/U950P supports the following commands for printing characters and advancing paper:

Command	Name
LF	Print and line feed
CR	Print and carriage return
FF	Print and eject slip paper
ESC J	Print and feed paper
ESC K	Print and reverse feed
ESC d	Print and feed ***n*** lines
ESC e	Print and reverse feed ***n*** lines

LF

[Name] Print and line feed

[Format] ASCII LF

Hex 0A

Decimal 10

LF prints the data in the print buffer and feeds one line. The amount of paper fed per line is based on the value set using the line spacing command. The default setting is 1/6 inch.

Program Example

```
PRINT #1, "AAAAA"; CHR$(&HA);
PRINT #1, "BBBBB"; CHR$(&HA);
```

Print Sample

```
AAAAA
BBBBB
```

CR

[Name] Print and carriage return

[Format] ASCII CR

Hex 0D

Decimal 13

When auto line feed is enabled, **CR** functions in the same way as **LF**. When auto line feed is disabled, **CR** prints the data in the print buffer and does not feed the paper. The DIP switch setting enables or disables auto line feed.

Program Example

```
PRINT #1, "AAAAA"; CHR$(&HD);
PRINT #1, "      BBBBB"; CHR$(&HA);
```

Print Sample

```
AAAAA          ← Auto line feed enabled
      BBBBB

AAAAABBBBB  ← Auto line feed disabled
```

FF

[Name] Print and eject slip paper

[Format]		
	ASCII	FF
	Hex	0C
	Decimal	12

FF prints the data in the print buffer and ejects the slip paper. The amount of paper fed is based on the value set using the eject length command. The slip is continuously ejected until the paper end is detected, because the default value for the slip eject length is not set.

Program Example

```
PRINT #1, CHR$(&H1B);"c0";CHR$(4); ← Select slip
PRINT #1, "AAAAA"; CHR$(&HA);
PRINT #1, "BBBBB"; CHR$(&HC);
```

Print Sample

```
AAAAA
BBBBB

Entire sheet ejected
```

ESC J *n*

[Name] Print and feed paper

[Format]				
	ASCII	ESC	J	*n*
	Hex	1B	4A	*n*
	Decimal	27	74	*n*

[Range] $0 \le n \le 255$

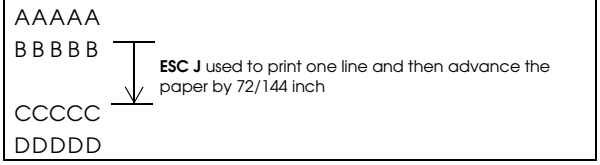
ESC J *n* prints the data in the print buffer and feeds the paper [***n*** × (vertical motion unit)] inches. This command is used to temporarily feed a specific length without changing the line spacing set by other commands. The maximum paper feed amount is 40 inches.

The vertical motion unit uses the vertical value set by the **GS P** command. The default value in the vertical direction is 1/144 inch.

Program Example

```
PRINT #1, CHR$(&H1D);"P";CHR$(150);CHR$(144);
PRINT #1, "A A A A A "; CHR$(&HA);
PRINT #1, "B B B B B "; CHR$(&H1B);"J";CHR$(72);
PRINT #1, "C C C C C "; CHR$(&HA);
PRINT #1, "D D D D D "; CHR$(&HA);
```

Print Sample



ESC K *n*

[Name] Print and reverse feed

[Format]	ASCII	ESC	K	*n*
	Hex	1B	4B	*n*
	Decimal	27	75	*n*

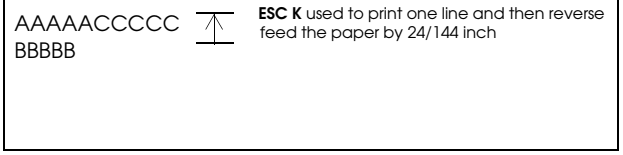
[Range] $0 \le n \le 255$

ESC K *n* prints the data in the print buffer and feeds the paper [***n*** × (vertical motion unit)] inches in the reverse direction. This command is used to temporarily feed a specific length without changing the line spacing set by other commands. In the reverse direction, the maximum paper feed amount is 1/6 inch. The vertical motion unit uses the vertical value set by the **GS P** command. The default value in the vertical direction is 1/144 inch.

Program Example

```
PRINT #1, CHR$(&H1D);"P";CHR$(150);CHR$(144);
PRINT #1, "AAAAA"; CHR$(&HA);
PRINT #1, "B B B B B"; CHR$(&H1B);"K";CHR$(24);
PRINT #1, "          CCCCC"; CHR$(&HA);
```

Print Sample



ESC d *n*

[Name] Print and feed *n* lines

[Format]	ASCII	ESC	d	*n*
	Hex	1B	64	*n*
	Decimal	27	100	*n*

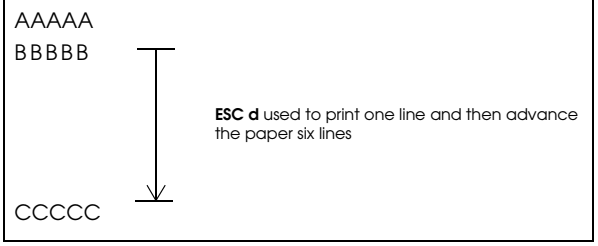
[Range] $0 \le n \le 255$

ESC d *n* prints the data in the print buffer and feeds ***n*** lines. The amount of paper fed per line is based on the value set using the line spacing command. The maximum paper feed amount is 40 inches. The default setting of the paper feed amount is 1/6 inch.

Program Example

```
PRINT #1, "AAAAA"; CHR$(&HA);
PRINT #1, "BBBBB"; CHR$(&H1B);"d";CHR$(6);
PRINT #1, "CCCCC"; CHR$(&HA);
```

Print Sample



ESC e *n*

[Name] Print and reverse feed *n* lines

[Format]				
	ASCII	ESC	e	*n*
	Hex	1B	65	*n*
	Decimal	27	101	*n*

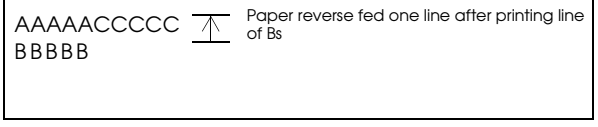
[Range] $0 \le n \le 255$

ESC e *n* prints the data in the print buffer and feeds ***n*** lines in the reverse direction. The amount of paper fed per line is based on the value set using the line spacing command. The maximum reverse paper feed amount is 1/6 inch. The default setting of the paper feed amount is 1/6 inch.

Program Example

```
PRINT #1, "AAAAA"; CHR$(&HA);
PRINT #1, "BBBBB"; CHR$(&H1B);"e";CHR$(1);
PRINT #1, "          CCCCC"; CHR$(&HA);
```

Print Sample



Line Spacing Commands

The TM-U950/U950P supports the following commands for setting line spacing. These commands only set the line spacing; they do not actually advance the paper. The line spacing set using these commands affects the results of the **LF** and **ESC d** commands. The paper is advanced using the paper feed buttons (RECEIPT FEED and JOURNAL/SLIP FEED).

Command	Name
ESC 2	Select 1/6-inch line spacing
ESC 3	Set line spacing
ESC C	Set slip paper eject length

ESC 2

[Name]	Select 1/6-inch line spacing			
[Format]	ASCII	ESC	2	
	Hex	1B	32	
	Decimal	27	50	

ESC 3 *n*

[Name]	Set line spacing			
[Format]	ASCII	ESC	3	*n*
	Hex	1B	33	*n*
	Decimal	27	51	*n*
[Range]	$0 \le n \le 255$			

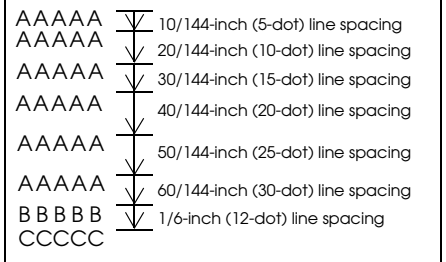
ESC 2 sets the line spacing to 1/6 inch. This is equivalent to 12 dots.

ESC 3 *n* sets the line spacing to [***n*** × (vertical motion unit)] inches. The default setting of the paper feed amount is 1/6 inch. The vertical motion unit uses the vertical value set by the **GS P** command. The default value in the vertical direction is 1/144 inch.

Program Example

```
PRINT #1, CHR$(&H1D);"P";CHR$(150);CHR$(144);
PRINT #1, CHR$(&H1B);"c1";CHR$(4); ← Select paper type for command settings
FOR n=10 TO 60 STEP 10
   PRINT #1, CHR$(&H1B);"3";CHR$(n);
   PRINT #1, "AAAAA"; CHR$(&HA);
NEXT n
PRINT #1, CHR$(&H1B);"2";
PRINT #1, "B B B B B"; CHR$(&HA);
PRINT #1, "CCCCC"; CHR$(&HA);
```

Print Sample



ESC C *n*

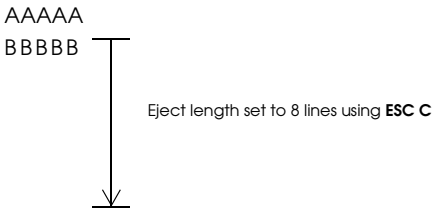
[Name]	Set slip paper eject length			
[Format]	ASCII	ESC	C	*n*
	Hex	1B	43	*n*
	Decimal	27	67	*n*
[Range]	$0 \le n \le 255$			

ESC C *n* sets the eject length for slip paper to ***n*** lines. The maximum eject length is 40 inches. The default setting of the eject length is ***n*** = 0. This length is calculated by [***n*** × line spacing setting]. No eject length is set if ***n***=0. When ***n***=0, the paper is ejected continuously until it is completely out of the printer. The eject length set by this command is used by the **FF** command..

Program Example

```
PRINT #1, CHR$(&H1B);"c1";CHR$(4); ←Select paper type for command settings
PRINT #1, CHR$(&H1B);"C";CHR$(8); ← Set eject length
PRINT #1, CHR$(&H1B);"c0";CHR$(4); ←Select slip
PRINT #1, "AAAAA"; CHR$(&HA);
PRINT #1, "B B B B B "; CHR$(&HC);
```

Print Sample



Character Commands

The TM-U950/U950P supports the following commands for setting character font and size.

Command	Name
ESC SP	Set right-side character spacing
ESC %	Select/cancel user-defined character set
ESC &	Define user-defined characters
ESC ?	Cancel user-defined characters
ESC R	Select an international character set
ESC t	Select character code table
ESC !	Select print mode(s)
ESC -	Turn underline mode on/off
ESC E	Turn emphasized mode on/off
ESC G	Turn double-strike mode on/off
ESC {	Turn upside-down printing mode on/off
ESC z	Turn parallel printing mode on/off for receipt and journal paper

ESC SP *n*

[Name]	Set right-side character spacing			
[Format]	ASCII	ESC	SP	*n*
	Hex	1B	20	*n*
	Decimal	27	32	*n*
[Range]	$0 \le n \le 255$			

ESC SP *n* sets the right-side character spacing in [***n*** × (horizontal motion unit)] inches. It is used to change the spacing between characters. The default right-side character spacing is set to 0 (***n***=0). The horizontal motion unit uses the horizontal value set by the **GS P** command. The default value in the horizontal direction is 1/150 inch.

Program Example

```
PRINT #1, CHR$(&H1D);"P";CHR$(150);CHR$(144);
PRINT #1, CHR$(&H1B);" ";CHR$(0); ←Character spacing set to 0
PRINT #1, "AAAAA"; CHR$(&HA);
PRINT #1, CHR$(&H1B);" ";CHR$(6); ←Character spacing set to 6
PRINT #1, "B B B B B"; CHR$(&HA);
PRINT #1, CHR$(&H1B);" ";CHR$(12); ←Character spacing set to 12
PRINT #1, "CCCCC"; CHR$(&HA);
```

Print Sample

```
AAAAA ←0-inch right side character spacing
B B B B B ←6/150-inch right side character spacing
CCCCC ←12/150-inch right side character spacing
```

ESC % *n*

[Name]	Select/cancel user-defined character set			
[Format]	ASCII	ESC	%	*n*
	Hex	1B	25	*n*
	Decimal	27	37	*n*
[Range]	$0 \le n \le 255$			

ESC & *y c1 c2* [*x1 d1 ... d*(*y* × *x1*)] ... [*xk d1 ... d*(*y* × *xk*)]

[Name]	Define user-defined characters				
[Format]	ASCII	ESC	&	*y*	*c1 c2* [*x1 d1 ... d*(*y* × *x1*)] ... [*xk d1 ... d*(*y* × *xk*)]
	Hex	1B	26	*y*	*c1 c2* [*x1 d1 ... d*(*y* × *x1*)] ... [*xk d1 ... d*(*y* × *xk*)]
	Decimal	27	38	*y*	*c1 c2* [*x1 d1 ... d*(*y* × *x1*)] ... [*xk d1 ... d*(*y* × *xk*)]
[Range]	$y = 2$				
	$32 \le c1 \le c2 \le 126$				
	$0 \le x \le 12$ (9 × 9 font)				
	$0 \le x \le 9$ (7 × 9 font)				
	$0 \le d1 \ldots dy \times xk \le 255$				

ESC ? *n*

[Name]	Cancel user-defined characters			
[Format]	ASCII	ESC	?	*n*
	Hex	1B	3F	*n*
	Decimal	27	63	*n*
[Range]	$0 \le n \le 255$			

ESC % *n* selects or cancels the user-defined character set. When the LSB (least significant bit) of ***n*** is 1, the user-defined character set is selected. When it is 0, the internal character set is selected; this is the default setting.

ESC & *y c1 c2* [*x1 d1 ... d*(*y* × *x1*)] ... [*xk d1 ... d*(*y* × *xk*)] defines user-defined characters from character code ***c1*** to ***c2***. The maximum number of user-defined characters differs depending on the receive buffer capacity. ***y*** and ***x*** are the configuration of a user-defined character. ***y*** specifies the number of bytes in the vertical direction. ***x*** specifies the number of bytes in the horizontal direction. Data (***d***) specifies a bit printed to 1 and not printed to 0. As the default, user-defined characters are not defined and the internal character set is printed. Once the user-defined characters have been defined, they are available until **ESC @**, **ESC ?**, or **GS ✻** is executed; the user-defined characters are redefined; the power is turned off; or the printer is reset.

ESC ? *n* cancels the user-defined characters defined for the character code ***n***. After the user-defined characters are canceled, the internal character set is printed.

Program Example

```
PRINT #1, CHR$(&H1B);"&";CHR$(2);"AC";
x=7: PRINT #1, CHR$(x);
FOR i=1 TO 2*x
  READ d: PRINT #1, CHR$(d);
NEXT i
x=9: PRINT #1, CHR$(x);
FOR i=1 TO 2*x
  READ d: PRINT #1, CHR$(d);
NEXT i
x=9: PRINT #1, CHR$(x);
FOR i=1 TO 2*x
  READ d: PRINT #1, CHR$(d);
NEXT i
PRINT #1, CHR$(&H1B);"%";CHR$(0);
PRINT #1, "A B C D E"; CHR$(&HA);
PRINT #1, CHR$(&H1B);"%";CHR$(1);
PRINT #1, "A B C D E"; CHR$(&HA);
PRINT #1, CHR$(&H1B);"?";"A";
PRINT #1, "A B C D E"; CHR$(&HA);

DATA &H30,&H00,&H78,&H00,&HFC,&H00,&H78,&H00
DATA &H30,&H00,&H00,&H00,&H00,&H00
DATA &H18,&H00,&H24,&H00,&H42,&H00,&H81,&H00
DATA &H42,&H00,&H24,&H00,&H18,&H00,&H00,&H00
DATA &H00,&H00
DATA &H18,&H00,&H28,&H00,&H4F,&H80,&H80,&H80
DATA &H4F,&H80,&H28,&H00,&H18,&H00,&H00,&H00
DATA &H00,&H00
```

Defines the user-defined characters as "A", "B", and "C"

Print Sample

A B C D E ← Characters from internal character set
◆ ◊ ↑ D E ← Characters from user-defined character set
A ◊ ↑ D E ← Characters from user-defined character set

ESC R *n*

[Name] Select an international character set

[Format]				
	ASCII	ESC	R	*n*
	Hex	1B	52	*n*
	Decimal	27	82	*n*

[Range] $0 \leq n \leq 10$

ESC R *n* selects an international character set ***n*** as follows. The default value is U.S.A. (***n***=0).

n	**Country**
0	U.S.A.
1	France
2	Germany
3	U.K.
4	Denmark I
5	Sweden
6	Italy
7	Spain
8	Japan
9	Norway
10	Denmark II

Program Example

```
FOR n=0 TO 10
  PRINT #1, CHR$(&H1B);"R";CHR$(n);
  PRINT #1, "# $ @ [ \ ] ^ ` { ¦ } ~  "; CHR$(&HA);
NEXT n
```

Print Sample

```
#  $  @  [  \  ]  ^  `  {  ¦  }  ~   ← n=0 (Default setting)
#  $  à  °  ç  §  ^  `  é  ù  è  ¨   ← n=1
#  $  §  Ä  Ö  Ü  ^  `  ä  ö  ü  ß   ← n=2
£  $  @  [  \  ]  ^  `  {  ¦  }  ~   ← n=3
#  $  @  Æ  Ø  Å  ^  `  œ  ø  å  ~   ← n=4
#  ¤  É  Ä  Ö  Å  Ü  é  ä  ö  å  ü   ← n=5
#  $  @  °  \  é  ^  ù  à  ò  è  ì   ← n=6
Pt $  @  ¡  Ñ  ¿  ^  `  ¨  ñ  }  ~   ← n=7
#  $  @  [  ¥  ]  ^  `  {  ¦  }  ~   ← n=8
#  ¤  É  Æ  Ø  Å  Ü  é  œ  ø  å  ü   ← n=9
#  $  É  Æ  Ø  Å  Ü  é  œ  ø  å  ü   ← n=10
```

ESC t *n*

[Name]	Select character code table			
[Format]	ASCII	ESC	t	*n*
	Hex	1B	74	*n*
	Decimal	27	116	*n*
[Range]	$0 \le n \le 5$			
	$254 \le n \le 255$			

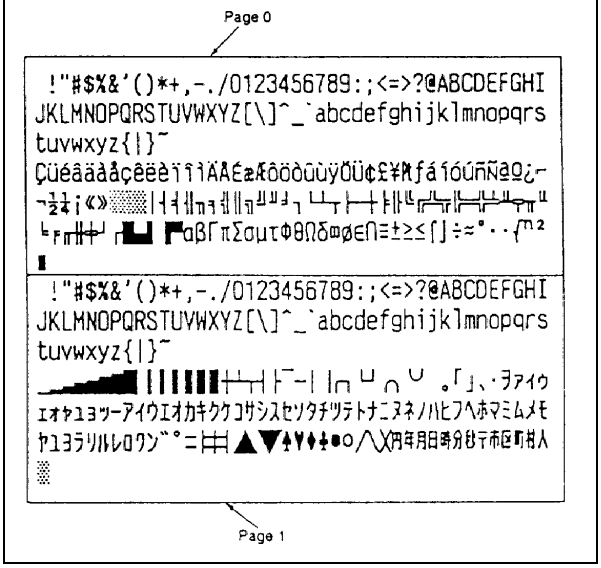
ESC t *n* selects a page ***n*** from the character code table as follows. The alphanumeric characters (20H (decimal 32) to 7FH (decimal 127)) are the same for each page. The graphic characters (80H (decimal 128) to FFH (decimal 255)) are different for each page. The default setting is page 0.

n	Character code table
0	Page 0 (PC437 (U.S.A. , Standard Europe))
1	Page 1 (Katakana)
2	Page 2 (PC850 (Multilingual))
3	Page 3 (PC860 (Portuguese))
4	Page 4 (PC863 (Canadian-French))
5	Page 5 (PC865 (Nordic))
254	Page 254 (Space page)
255	Page 255 (Space page)

Program Example

```
PRINT #1, CHR$(&H1B);"t";CHR$(0);
GOSUB printing
PRINT #1, CHR$(&H1B);"t";CHR$(1);
GOSUB printing
END

printing:
  FOR i=&H20 TO &H7F
    PRINT #1, CHR$(i);
  NEXT i
  PRINT #1, CHR$(&HA);
  FOR i=&H80 TO &HFF
    PRINT #1, CHR$(i);
  NEXT i
  PRINT #1, CHR$(&HA);
  RETURN
```

Print Sample



ESC ! *n*

[Name]	Select print mode(s)			
[Format]	ASCII	ESC	!	*n*
	Hex	1B	21	*n*
	Decimal	27	33	*n*
[Range]	$0 \le n \le 255$			

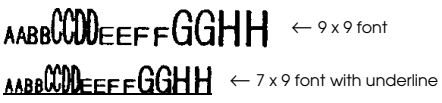
ESC ! *n* selects print modes using ***n*** as follows. The default character font depends on the DIP switch setting. The defaults for other print modes are set to ***n***=0.

Bit	Off/On	Hex	Decimal	Function
0	Off	00	0	Character font 9 x 9 selected.
	On	01	1	Character font 7 x 9 selected.
1, 2	—	—	—	Undefined.
3	Off	00	0	Emphasized mode not selected.
	On	08	8	Emphasized mode selected.
4	Off	00	0	Double-height mode not selected.
	On	10	16	Double-height mode selected.
5	Off	00	0	Double-width mode selected.
	On	20	32	Double-width mode not selected.
6	–	–	–	Undefined.
7	Off	00	0	Underline mode not selected.
	On	80	128	Underline mode selected.

Program Example

```
PRINT #1, CHR$(&H1B);"!";CHR$(0);  "AA";
PRINT #1, CHR$(&H1B);"!";CHR$(8);  "BB";
PRINT #1, CHR$(&H1B);"!";CHR$(16); "CC";
PRINT #1, CHR$(&H1B);"!";CHR$(24); "DD";
PRINT #1, CHR$(&H1B);"!";CHR$(32); "EE";
PRINT #1, CHR$(&H1B);"!";CHR$(40); "FF";
PRINT #1, CHR$(&H1B);"!";CHR$(48); "GG";
PRINT #1, CHR$(&H1B);"!";CHR$(56); "HH"; CHR$(&HA);
PRINT #1, CHR$(&H1B);"!";CHR$(129); "AA";
PRINT #1, CHR$(&H1B);"!";CHR$(137); "BB";
PRINT #1, CHR$(&H1B);"!";CHR$(145); "CC";
PRINT #1, CHR$(&H1B);"!";CHR$(153); "DD";
PRINT #1, CHR$(&H1B);"!";CHR$(161); "EE";
PRINT #1, CHR$(&H1B);"!";CHR$(169); "FF";
PRINT #1, CHR$(&H1B);"!";CHR$(177); "GG";
PRINT #1, CHR$(&H1B);"!";CHR$(185); "HH"; CHR$(&HA);
```

Print Sample



AA: Normal

BB: Emphasized

CC: Double-height

DD: Emphasized + Double-height

EE: Double-width

FF: Emphasized + Double-width

GG: Double-height + Double-width

HH: Emphasized + Double-height + Double-width

ESC – *n*

[Name] Turn underline mode on/off

[Format]				
	ASCII	ESC	—	*n*
	Hex	1B	2D	*n*
	Decimal	27	45	*n*

[Range] *n* = 0, 1, 48, 49

ESC – *n* turns underline mode on or off. When ***n***=1 or 49, underline mode is turned on, and when ***n***=0 or 48, underline mode is turned off. The default setting is ***n***=0.

Program Example

```
PRINT #1, CHR$(&H1B);"-";CHR$(1);
PRINT #1, "AAAAA"; CHR$(&HA);
PRINT #1, CHR$(&H1B);"-";CHR$(0);
PRINT #1, "BBBBB"; CHR$(&HA);
```

Print Sample

AAAAA ← Underline turned on
BBBBB ← Underline turned off

ESC E *n*

[Name] Turn emphasized mode on/off

[Format]				
	ASCII	ESC	E	*n*
	Hex	1B	45	*n*
	Decimal	27	69	*n*

[Range] 0 ≤ *n* ≤ 255 (Only the least significant bit of *n* is enabled.)

ESC E *n* turns emphasized mode on or off. When the LSB (least significant bit) of ***n*** is 1, emphasized mode is turned on; when it is 0, emphasized mode is turned off. The default setting is ***n***=0. Emphasized and double-strike printing appear the same.

Program Example

```
PRINT #1, CHR$(&H1B);"E";CHR$(1);
PRINT #1, "AAAAA"; CHR$(&HA);
PRINT #1, CHR$(&H1B);"E";CHR$(0);
PRINT #1, "B B B B B "; CHR$(&HA);
```

Print Sample

AAAAA ← Emphasized
BBBBB ← Normal

ESC G *n*

[Name] Turn double-strike mode on/off

[Format]				
	ASCII	ESC	G	*n*
	Hex	1B	47	*n*
	Decimal	27	71	*n*

[Range] 0 ≤ *n* ≤ 255

ESC G *n* turns double-strike mode on or off. When the LSB (least significant bit) of ***n*** is 1, double-strike mode is turned on; when it is 0, double-strike mode is turned off. The default setting is ***n***=0. Double-strike and emphasized printing appear the same.

Program Example

```
PRINT #1, CHR$(&H1B);"G";CHR$(1);
PRINT #1, "AAAAA"; CHR$(&HA);
PRINT #1, CHR$(&H1B);"G";CHR$(0);
PRINT #1, "BBBBB"; CHR$(&HA);
```

Print Sample

AAAAA ← Double-strike
BBBBB ← Normal

ESC { *n*

[Name] Turn upside-down printing mode on/off

[Format]	ASCII	ESC	{	*n*
	Hex	1B	7B	*n*
	Decimal	27	123	*n*

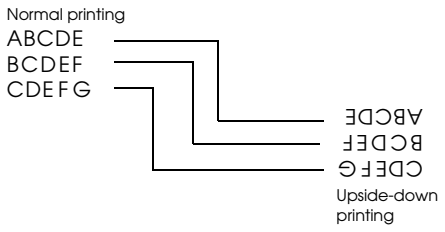
[Range] $0 \le n \le 255$

ESC { *n* turns upside-down printing mode on or off. When the LSB (least significant bit) of ***n*** is 1, upside-down printing mode is turned on; when it is 0, upside-down printing mode is turned off. The default setting is ***n***=0. When upside-down mode is turned on, the printer prints 180°-rotated characters from right to left. The line printing order is not reversed. This command is enabled only when input at the beginning of a line.

Program Example

```
PRINT #1, CHR$(&H1B);"{";CHR$(0);
GOSUB printing
PRINT #1, CHR$(&H1B);"{";CHR$(1);
GOSUB printing
END

printing:
  PRINT #1, "ABCDE"; CHR$(&HA);
  PRINT #1, "BCDEF"; CHR$(&HA);
  PRINT #1, "CDEFG"; CHR$(&HA);
  RETURN
```

Print Sample



ESC z *n*

[Name] Turn parallel printing mode on/off for receipt and journal paper

[Format]	ASCII	ESC	z	*n*
	Hex	1B	7A	*n*
	Decimal	27	122	*n*

[Range] $0 \le n \le 255$

ESC z *n* turns parallel printing mode on or off for receipt and journal paper. When the LSB (least significant bit) of ***n*** is 1, parallel printing mode for receipt and journal paper is turned on; when it is 0, this mode is turned off. The default setting is ***n***=0. This command is effective only when both receipt and journal paper are selected by **ESC c 0** and it is sent at the beginning of a line.

Program Example

```
PRINT #1, CHR$(&H1B);"c0";CHR$(3);  ← Select receipt and journal
PRINT #1, CHR$(&H1B);"z";CHR$(1); ← Parallel printing mode turned on
PRINT #1, "AAAAAAAAAAAAAAAAAAAA";
PRINT #1, "B B B B B B B B B B B B B B B B B B B B "; CHR$(&HA);
PRINT #1, CHR$(&H1B);"z";CHR$(0); ← Parallel printing mode turned off
PRINT #1, "CCCCCCCCCCCCCCCCCCCC";
PRINT #1, "DDDDDDDDDDDDDDDDDDD"; CHR$(&HA);
```

Print Sample <receipt>

```
AAAAAAAAAAAAAAAAAAAABBBBBBBBBB
BBBBBBBBB
CCCCCCCCCCCCCCCCCCCCDDDDDDDDDD
```

Print Sample <journal>

```
AAAAAAAAAAAAAAAAAAAABBBBBBBBBB
BBBBBBBBB
DDDDDDDDDD
```

Panel Button Command

The TM-U950/U950P supports the following command for enabling and disabling the panel buttons (RECEIPT FEED and JOURNAL/SLIP FEED).

Command	Name
ESC c 5	Enable/disable panel buttons

ESC c 5 *n*

[Name]	Enable/disable panel buttons				
[Format]	ASCII	ESC	c	5	*n*
	Hex	1B	63	35	*n*
	Decimal	27	99	53	*n*
[Range]	$0 \le n \le 255$				

ESC c 5 *n* enables or disables the RECEIPT FEED and JOURNAL/SLIP FEED buttons. When the LSB (least significant bit) of ***n*** is 1, these buttons are disabled; when it is 0, these buttons are enabled. To prevent problems caused by accidentally pressing the PAPER FEED button, use this command to disable the button. When the printer cover is open, the panel buttons are enabled regardless of the setting of this command.

Program Example

```
PRINT #1, CHR$(&H1B);"c5";CHR$(1); ← Disable panel buttons
```

Paper Sensor Commands

The TM-U950/U950P supports the following commands for controlling the paper sensor(s) that stop printing.

Command	Name
ESC c 4	Select paper sensor(s) to stop printing
ESC c 3	Select paper sensor(s) to output paper-end signals

ESC c 4 *n*

[Name]	Select paper sensor(s) to stop printing				
[Format]	ASCII	ESC	c	4	*n*
	Hex	1B	63	34	*n*
	Decimal	27	99	52	*n*
[Range]	$0 \le n \le 255$				

ESC c 4 *n* selects the paper sensor that stops printing when the paper runs out. The default setting is ***n***=12 (for the journal and receipt sensors only). When the journal or receipt paper sensor is enabled (bit 0 is 3) with this command and a paper-end is detected, printing is stopped and the printer goes off-line automatically as soon as the current line finishes printing. To resume printing, cancel the "roll near-end" status by replacing the paper roll. When the slip insertion sensor is enabled and a paper-end is detected, the printer ejects the paper after printing and enters the paper waiting state.

If "stop printing" is disabled when the journal near-end sensor is triggered, the JOURNAL OUT or RECEIPT OUT LED lights but the printer remains on-line. If "stop printing" is disabled when a paper-end is detected, the printer does not stop printing and eject the paper.

It is possible to select multiple sensors to stop printing. Then when any sensor detects a paper-end, printing stops. When a paper sensor is enabled with this command, printing stops only when the corresponding paper is selected for printing.

The paper sensor(s) used to stop printing are selected by using ***n*** as follows:

Bit	Off/On	Hex	Decimal	Function
0	Off	00	0	Journal near-end sensor disabled.
	On	01	1	Journal near-end sensor enabled.
1	Off	00	0	Receipt near-end sensor disabled.
	On	02	2	Receipt near-end sensor enabled.
2	Off	00	0	Journal sensor disabled.
	On	02	4	Journal sensor enabled.
3	Off	00	0	Receipt sensor disabled.
	On	08	8	Receipt sensor enabled.
4	Off	00	0	Slip insertion sensor disabled.
	On	10	16	Slip insertion sensor enabled.
5	Off	00	0	Slip ejection sensor disabled.
	On	20	32	Slip ejection sensor enabled.
6, 7	—	00	0	Undefined.

Program Example

```
PRINT #1, CHR$(&H1B);"c4";CHR$(63); ← All sensors enabled
```

ESC c 3 *n*

[Name] Select paper sensor(s) to output paper-end signals

[Format]					
	ASCII	ESC	c	3	*n*
	Hex	1B	63	33	*n*
	Decimal	27	99	51	*n*

[Range] $1 \le n \le 255$

ESC c 3 *n* selects paper sensor(s) to output paper-end signals to a parallel interface. Multiple sensors can be selected to output signals. Then if any of the sensors detects a paper-end, the paper-end signal is output.

The default value is to enable the journal near-end, receipt near-end, journal-end, and receipt-end sensors (***n***=15). This command is enabled only with a parallel interface and is ignored with a serial interface.

The paper sensor(s) used to output paper-end signals are selected by using ***n*** as follows:

Bit	Off/On	Hex	Decimal	Function
0	Off	00	0	Journal near-end sensor disabled.
	On	01	1	Journal near-end sensor enabled.
1	Off	00	0	Receipt near-end sensor disabled.
	On	02	2	Receipt near-end sensor enabled.
2	Off	00	0	Journal end sensor disabled.
	On	02	4	Journal end sensor enabled.
3	Off	00	0	Receipt end sensor disabled.
	On	08	8	Receipt end sensor enabled.
4	Off	00	0	Slip insertion sensor disabled.
	On	10	16	Slip insertion sensor enabled.
5	Off	00	0	Slip ejection sensor disabled.
	On	20	32	Slip ejection sensor enabled.
6, 7	—	00	0	Undefined.

Program Example

```
PRINT #1, CHR$(&H1B);"c3";CHR$(63); ← All sensors enabled
```

Printing Paper Commands

The TM-U950/U950P supports the following commands for controlling printing paper.

Command	Name
ESC c 0	Select paper type(s) for printing
ESC c 1	Select paper type(s) for command settings
ESC f	Set slip paper wait time

ESC c 0 *n*

[Name] Select paper type(s) for printing

[Format]					
	ASCII	ESC	c	0	*n*
	Hex	1B	63	30	*n*
	Decimal	27	99	48	*n*

[Range] $1 \le n \le 4$

ESC c 0 *n* selects paper type(s) for printing. Receipt, journal, and slip paper are available. Receipt and journal paper can be selected simultaneously. Slip and another paper type cannot be selected simultaneously. This command is enabled only when input at the beginning of a line. When previously disabled slip paper is enabled, the printer waits for the slip to be inserted. When previously enabled slip paper is disabled, the printer ejects the paper. Both journal and receipt paper are enabled by the default value (***n***=3).

The paper type(s) are selected for printing by using ***n*** as follows:

Bit	Off/On	Hex	Decimal	Function
0	Off	00	0	Journal paper roll disabled.
	On	01	1	Journal paper roll enabled.
1	Off	00	0	Receipt paper roll disabled.
	On	02	2	Receipt paper roll enabled.
2	Off	00	0	Slip paper disabled.
	On	04	4	Slip paper enabled.
3–7	—	—	—	Undefined.

Program Example

```
PRINT #1, CHR$(&H1B);"c0";CHR$(1); ← Select journal
PRINT #1, "AAAAA"; CHR$(&HA); ← Print on journal
PRINT #1, CHR$(&H1B);"c0";CHR$(2); ← Select receipt
PRINT #1, "B B B B B "; CHR$(&HA); ← Print on receipt
```

Print Sample <receipt>

BBBBB

Print Sample <journal>

AAAAA

ESC c 1 *n*

[Name] Select paper type(s) for command settings

[Format]	ASCII	ESC	c	1	*n*
	Hex	1B	63	31	*n*
	Decimal	27	99	49	*n*

[Range] $1 \le n \le 7$

ESC c 1 ***n*** selects paper type(s) for use with line spacing command settings. Multiple paper types can be selected. The default is all paper types selected (***n***=7). **ESC 2** and **ESC 3** are used to set line spacing. The value of ***n*** is used as follows:

Bit	Off/On	Hex	Decimal	Function
0	Off	00	0	Journal paper roll disabled.
	On	01	1	Journal paper roll enabled.
1	Off	00	0	Receipt paper roll disabled.
	On	02	2	Receipt paper roll enabled.
2	Off	00	0	Slip paper disabled.
	On	04	4	Slip paper enabled.
3–7	—	—	—	Undefined.

Program Example

```
PRINT #1, CHR$(&H1B);"c1";CHR$(2); ← Select receipt
PRINT #1, CHR$(&H1B);"3";CHR$(12); ← Select paper feed amount for receipt
PRINT #1, CHR$(&H1B);"c1";CHR$(4); ← Select slip
PRINT #1, CHR$(&H1B);"3";CHR$(24); ← Select paper feed amount for slip
```

ESC f *t1 t2*

[Name] Set slip paper wait time

[Format]	ASCII	ESC	f	*t1*	*t2*
	Hex	1B	66	*t1*	*t2*
	Decimal	27	102	*t1*	*t2*

[Range] $0 \le t1 \le 15$

$0 \le t2 \le 64$

ESC f ***t1 t2*** sets the time that the printer waits for slip paper to be inserted to ***t1*** × 1 minutes, and the time from detection of the slip to the start of printing to ***t2*** × 0.1 seconds. When ***t1***=0, the slip waiting time is not set and the printer continues waiting for a slip to be inserted. The default for the slip waiting time is not set, and the start operation time is set to 1 second (***t1***=0, ***t2***=10). This setting alone, however, does not cause the printer to immediately start waiting for a slip to be inserted. The setting becomes effective when **ESC c 0** is used. **DLE ENQ** is used to cancel the slip waiting state.

Program Example

```
PRINT #1, CHR$(&H1B);"f";CHR$(15);CHR$(20);
PRINT #1, CHR$(&H1B);"c0";CHR$(4); ← Select slip
PRINT #1, "AAAAA"; CHR$(&HA);
```

Print Position Commands

The TM-U950/U950P supports the following commands for setting the print position.

Command	Name
RS	Journal tab
ESC $	Set absolute print position
**ESC **	Set relative print position
ESC a	Select justification

RS

[Name]	Journal tab	
[Format]	ASCII	RS
	Hex	1E
	Decimal	30

RS moves the print position to the beginning of the journal paper. This command is enabled only when both receipt and journal paper are selected and parallel printing mode for receipt and journal paper is turned off.

Program Example

```
PRINT #1, CHR$(&H1B);"c0";CHR$(3); ← Selects receipt and journal
PRINT #1, CHR$(&H1B);"z";CHR$(0); ← Parallel printing mode turned off
PRINT #1, "AAAAAAAAAAAAAAAAAAAAAAAAAAAAAA";
PRINT #1, "BBBBBBBBBBBBBBBBBBBBBBBBBBBBBB"; CHR$(&HA);
PRINT #1, "C C C C C C C C C C C C C C C C C C C C "; CHR$(&H1E);
PRINT #1, "D D D D D D D D D D D D D D D D D D D D "; CHR$(&HA);
```

Print Sample <receipt>

```
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
CCCCCCCCCCCCCCCCCCCC →→→Print position moved by RS →→→
```

Print Sample <journal>

```
BBBBBBBBBBBBBBBBBBBBBBBBBBBBBB
DDDDDDDDDDDDDDDDDDDD
```

ESC $ *nL nH*

[Name]	Set absolute print position				
[Format]	ASCII	ESC	$	*nL*	*nH*
	Hex	1B	24	*nL*	*nH*
	Decimal	27	36	*nL*	*nH*
[Range]	$0 \leq nL \leq 255$				
	$0 \leq nH \leq 255$				

ESC \ *nL nH*

[Name]	Set relative print position				
[Format}	ASCII	ESC	\	*nL*	*nH*
	Hex	1B	5C	*nL*	*nH*
	Decimal	27	92	*nL*	*nH*
[Range]	$0 \le nL \le 255$				
	$0 \le nH \le 255$				

ESC $ *nL nH* sets the print starting position to [(***nL*** + ***nH*** × 256) × (horizontal motion unit)] inches from the beginning of the line.

ESC \ *nL nH* moves the print starting position to [(***nL*** + ***nH*** × 256) × (horizontal motion unit)] inches from the current position.

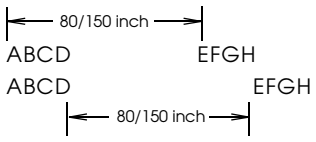
Use the supplement of ***n*** for setting ***n*** pitch movement to the left: – ***n*** pitch = 65536 – ***n***

The horizontal motion unit uses the horizontal value set by the **GS P** command. The default value in the horizontal direction is 1/150 inch.

Program Example

```
PRINT #1, CHR$(&H1D);"P";CHR$(150);CHR$(144);
PRINT #1, "ABCD";
PRINT #1, CHR$(&H1B);"$";CHR$(80);CHR$(0);
PRINT #1, "EFGH"; CHR$(&HA);
PRINT #1, "ABCD";
PRINT #1, CHR$(&H1B);CHR$(&H5C);CHR$(80);CHR$(0);
PRINT #1, "EFGH"; CHR$(&HA);
```

Print Sample



ESC a *n*

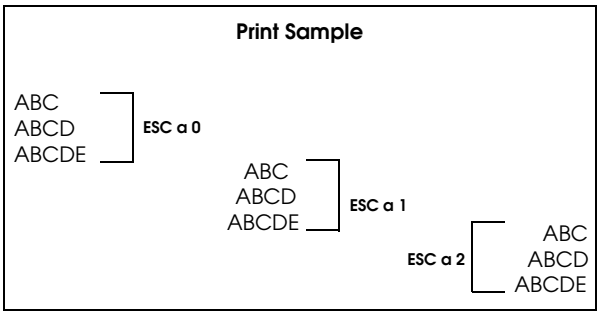
[Name]	Select justification			
[Format]	ASCII	ESC	a	*n*
	Hex	1B	61	*n*
	Decimal	27	97	*n*
[Range]	$0 \le n \le 2$			
	$48 \le n \le 50$			

ESC a *n* aligns all the data in one line to a specified position. Left justification is selected when ***n***=0 or 48, centering is selected when ***n***=1 or 49, and right justification is selected when ***n***=2 or 50. The default setting is left justification (***n***=0). This command is enabled only when input at the beginning of a line.

Program Example

```
FOR n=0 TO 2
  PRINT #1, CHR$(&H1B);"a";CHR$(n);
  PRINT #1, "ABC"; CHR$(&HA);
  PRINT #1, "ABCD"; CHR$(&HA);
  PRINT #1, "ABCDE"; CHR$(&HA);
NEXT n
```

Print Sample



Bit-Image Commands

The TM-U950/U950P supports the following bit-image commands.

Command	Name
ESC ✻	Select bit-image mode
GS ✻	Define user-defined bit image
GS /	Print user-defined bit image

ESC ✻ *m* n_L n_H [*d*]*k*

[Name] Select bit-image mode

[Format]	ASCII	ESC	✻	*m*	n_L	n_H	*d1...dk*
	Hex	1B	2A	*m*	n_L	n_H	*d1...dk*
	Decimal	27	42	*m*	n_L	n_H	*d1...dk*

[Range] $m = 0, 1$

$0 \le n_L \le 255$

$0 \le n_H \le 3$

$0 \le d \le 255$

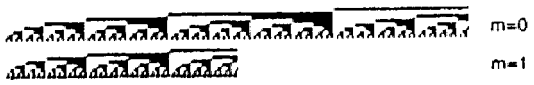
ESC ✻ *m* n_L n_H *d1...dk* selects a bit-image mode using ***m*** for the number of dots specified by ($n_L + n_H \times 256$). This command is used to print a predefined picture or logo. The modes selectable by ***m*** are as follows:

		Maximum Number of Dots			
m	**Mode**	**Receipt**	**Journal**	**Slip**	**Adjacent Dot**
0	8-dot single density	180	180	400	Permitted
1	8-dot double density	360	360	800	Prohibited

Program Example

```
m=0:  GOSUB bitimage8
m=1:  GOSUB bitimage8
END

bitimage8:
  PRINT #1, CHR$(&H1B);"*";CHR$(m);CHR$(180);CHR$(0);
  FOR i=1 TO 180
    PRINT #1, CHR$(i);
  NEXT I
  PRINT #1, CHR$(&HA);
  RETURN
```

Print Sample



GS * *x y d1...d(x × y × 8)*

[Name]	Define user-defined bit image					
[Format]	ASCII	GS	*	*x*	*y*	*d1...d(x × y × 8)*
	Hex	1D	2A	*x*	*y*	*d1...d(x × y × 8)*
	Decimal	29	42	*x*	*y*	*d1...d(x × y × 8)*
[Range]	$1 \le x \le 255$					
	$1 \le y \le 255$					
	$x \times y \le 155$ (when receive buffer is 2K bytes)					
	$x \times y \le 404$ (when receive buffer is 32 bytes)					

GS / *m*

[Name]	Print user-defined bit image			
[Format]	ASCII	GS	/	*m*
	Hex	1D	2F	*m*
	Decimal	29	47	*m*
[Range]	$0 \le m \le 1$			
	$48 \le m \le 49$			

GS * *x y d1...d(x × y × 8)* defines a user-defined bit image using $x \times 8$ dots in the horizontal direction and $y \times 8$ dots in the vertical direction. The maximum user-defined bit image differs depending on the receive buffer capacity. Once a user-defined bit image has been defined, it is available until another definition is made; **ESC @** or **ESC &** is executed; the printer is reset; or the power is turned off. When this command is executed, the user-defined characters are cleared. The default setting is undefined.

GS / *m* prints a user-defined bit image using the mode specified by ***m***, as follows. This command is effective only when there is no data in the print buffer.

		Horizontal		Maximum Number of Horizontal Dots	
m	**Mode**	**Dot Density**	**Set Adjacent Dots**	**Paper Roll**	**Slip Paper**
0, 48	Double-width	Single	Permitted	180	400
1, 49	Normal	Multiple	Prohibited	360	800

Program Example

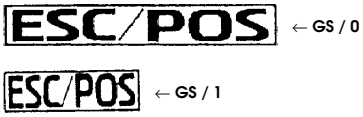
```
x=16: y=5
PRINT #1, CHR$(&H1D);"*";CHR$(x);CHR$(y);
FOR i=1 TO x*y*8
  READ a$: d=VAL("&H"+a$)
  PRINT #1, CHR$(d);
NEXT i
FOR m=0 TO 1
  PRINT #1, CHR$(&H1D);"/";CHR$(m)
  PRINT #1, CHR$(&HA);
NEXT m
END

DATA FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,C0,00,00,00,03,C0
DATA 00,00,00,03,CF,FF,FF,FF,F3,CF,FF,FF,FF,F3,CF,FF
DATA FF,FF,F3,CF,FF,FF,FF,F3,CF,FF,FF,FF,F3,CF,C0,FC
DATA 03,F3,CF,C0,FC,03,F3,CF,C0,FC,03,F3,CF,C0,FC,03
DATA F3,CF,C0,FC,03,F3,CF,C0,FC,03,F3,CF,C0,FC,03,F3
DATA CF,C0,FC,03,F3,CF,C0,FC,03,F3,CF,C0,00,03,F3,C0
DATA 00,00,00,03,C0,FF,00,03,F3,C3,FF,C0,03,F3,C7,FF
DATA E0,03,F3,C7,FF,F0,03,F3,CF,FF,F8,03,F3,CF,FF,FC
DATA 03,F3,CF,E3,FE,03,F3,CF,C1,FF,03,F3,CF,C0,FF,83
DATA F3,CF,C0,7F,C7,F3,CF,C0,3F,FF,F3,CF,C0,1F,FF,F3
DATA CF,C0,0F,FF,E3,CF,C0,07,FF,E3,CF,C0,03,FF,C3,C0
DATA 00,00,FF,03,C0,00,00,00,03,C0,3F,FF,FC,03,C0,FF
DATA FF,FF,03,C3,FF,FF,FF,C3,C7,FF,FF,FF,E3,C7,FF,FF
DATA FF,E3,CF,FF,FF,FF,F3,CF,F0,00,0F,F3,CF,C0,00,03
DATA F3,CF,C0,00,03,F3,CF,C0,00,03,F3,CF,C0,00,03,F3
DATA CF,C0,00,03,F3,CF,C0,00,03,F3,CF,C0,00,03,F3,CF
DATA C0,00,03,F3,CF,C0,00,03,F3,C0,00,00,00,03,C0,00
DATA 00,00,73,C0,00,00,03,C3,C0,00,00,1E,03,C0,00,00
DATA 70,03,C0,00,03,C0,03,C0,00,1E,00,03,C0,00,78,00
DATA 03,C0,03,C0,00,03,C0,0E,00,00,03,C0,78,00,00,03
DATA C3,C0,00,00,03,CE,00,00,00,03,C0,00,00,00,03,CF
DATA FF,FF,FF,F3,CF,FF,FF,FF,F3,CF,FF,FF,FF,F3,CF,FF
DATA FF,FF,F3,CF,FF,FF,FF,F3,CF,FF,FF,FF,F3,CF,C0,0F
DATA C0,03,CF,C0,0F,C0,03,CF,C0,0F,C0,03,CF,C0,0F,C0
```

Definition of a user-defined bit image

Program Example (continued)

```
DATA 03,CF,C0,0F,C0,03,CF,E0,1F,C0,03,CF,FF,FF,C0,03
DATA CF,FF,FF,CO,03,C7,FF,FF,80,03,C7,FF,FF,80,03,C1
DATA FF,FE,00,03,C0,3F,F0,00,03,C0,00,00,00,03,C0,0F
DATA FF,F0,03,C0,FF,FF,FF,03,C3,FF,FF,FF,C3,C7,FF,FF
DATA FF,E3,C7,FF,FF,FF,E3,CF,FF,FF,FF,F3,CF,F0,00,0F
DATA F3,CF,C0,00,03,F3,CF,C0,00,03,F3,CF,C0,00,03,F3
DATA CF,C0,00,03,F3,CF,C0,00,03,F3,CF,C0,00,03,F3,CF
DATA C0,00,03,F3,CF,F0,00,0F,F3,CF,FF,FF,FF,F3,C7,FF
DATA FF,FF,E3,C7,FF,FF,FF,E3,C3,FF,FF,FF,C3,C0,FF,FF
DATA FF,03,C0,0F,FF,F0,03,C0,00,00,00,03,C0,FF,00,03
DATA F3,C3,FF,C0,03,F3,C7,FF,E0,03,F3,C7,FF,F0,03,F3
DATA CF,FF,F8,03,F3,CF,FF,FC,03,F3,CF,E3,FE,03,F3,CF
DATA C1,FF,03,F3,CF,C0,FF,83,F3,CF,C0,7F,C7,F3,CF,C0
DATA 3F,FF,F3,CF,C0,1F,FF,F3,CF,C0,0F,FF,E3,CF,C0,07
DATA FF,E3,CF,C0,03,FF,C3,C0,00,00,FF,C3,C0,00,00,00
DATA 03,C0,00,00,00,03,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF
```

Print Sample



Status Commands

The TM-U950/U950P supports the following status transmission commands. These commands can be used to determine the status of the printer, paper sensors, and peripheral devices connected to the printer.

Command	Name
GS a	Enable/disable automatic status back (ASB)
GS r	Transmit status
DLE EOT	Transmit real-time status
ESC u	Transmit peripheral device status
ESC v	Transmit paper sensor status
GS ENQ	Transmit real-time printer status
DLE EOT BS	Transmit real-time MICR status

GS a *n*

[Name] Enable/disable Automatic Status Back (ASB)

[Format]				
	ASCII	GS	a	*n*
	Hex	1D	61	*n*
	Decimal	29	97	*n*

[Range] $0 \le n \le 255$

GS a *n* selects a status for ASB transmission. ASB is enabled if any status item is selected. The printer automatically transmits a 4-byte status message whenever the status changes. Multiple status items can be selected. When ***n***=0, ASB is disabled. The default depends on the DIP switch settings. The status items are selected using ***n*** as follows:

Bit	Off/On	Hex	Decimal	Status for ASB
0	Off	00	0	Drawer kick-out connector pin 3 status disabled.
	On	01	1	Drawer kick-out connector pin 3 status enabled.
1	Off	00	0	On-line/off-line disabled.
	On	02	2	On-line/off-line enabled.
2	Off	00	0	Error status disabled.
	On	04	4	Error status enabled.
3	Off	00	0	Journal and receipt paper roll sensor status disabled.
	On	08	8	Journal and receipt paper roll sensor status enabled.
4	—	—	—	Undefined.

Bit	Off/On	Hex	Decimal	Status for ASB
5	Off	00	0	Slip paper sensor and status disabled.
	On	20	32	Slip paper sensor and status enabled.
6,7	—	—	—	Undefined.

Program Example

```
PRINT #1, CHR$(&H1D);"a";CHR$(4); ← Enable "Error" status
```

First byte (printer information)

Bit	Off/On	Hex	Decimal	Status for ASB
0	Off	00	0	Not used. Fixed to Off.
1	Off	00	0	Not used. Fixed to Off.
2	Off	00	0	Drawer kick-out connector pin 3 is LOW.
	On	04	4	Drawer kick-out connector pin 3 is HIGH.
3	Off	00	0	On-line.
	On	08	8	Off-line.
4	On	10	16	Not used. Fixed to On.
5	Off	00	0	Cover closed.
	On	20	32	Cover open.
6	Off	00	0	Paper is not being fed by the PAPER FEED button.
	On	40	64	Paper is being fed by the PAPER FEED button.
7	Off	00	0	Not used. Fixed to Off.

Second byte (error information)

Bit	Off/On	Hex	Decimal	Status for ASB
0,1	—	—	—	Undefined.
2	Off	00	0	No mechanical error.
	On	04	4	Mechanical error has occurred.
3	Off	00	0	No auto-cutter error.
	On	08	8	Auto-cutter error has occurred.
4	Off	00	0	Not used. Fixed to Off.
5	Off	00	0	No unrecoverable error.
	On	20	32	Unrecoverable error has occurred.

Bit	Off/On	Hex	Decimal	Status for ASB
6	Off	00	0	No temporary abnormality of the print head temperature.
	On	40	64	Temporary abnormality of the print head temperature has occurred.
7	Off	00	0	Not used. Fixed to Off.

Third byte (paper sensor information)

Bit	Off/On	Hex	Decimal	Status for ASB
0	Off	00	0	Journal near-end sensor: paper adequate.
	On	01	1	Journal near-end sensor: paper near end.
1	Off	00	0	Receipt near-end sensor: paper adequate.
	On	02	2	Receipt near-end sensor: paper near end.
2	Off	00	0	Journal end sensor: paper present.
	On	04	4	Journal end sensor: paper not present.
3	Off	00	0	Receipt end sensor: paper present.
	On	08	8	Receipt end sensor: paper not present.
4	Off	00	0	Not used. Fixed to Off.
5	Off	00	0	Slip insertion sensor: paper present.
	On	20	32	Slip insertion sensor: paper not present.
6	Off	00	0	Slip ejection sensor: paper present.
	On	40	64	Slip ejection sensor: paper not present.
7	Off	00	0	Not used. Fixed to Off.

Fourth byte (paper sensor information)

Bit	Off/On	Hex	Decimal	Status for ASB
0	Off	00	0	Slip selection: selected.
	On	01	1	Slip selection: not selected.
1	Off	00	0	Slip status: possible to print.
	On	02	2	Slip status: not possible to print.
2,3	—	—	—	Undefined.
4	Off	00	0	Not used. Fixed to Off.
5,6	—	—	—	Undefined.
7	Off	00	0	Not used. Fixed to Off.

GS r *n*

[Name]	Transmit status			
[Format]	ASCII	GS	r	*n*
	Hex	1D	72	*n*
	Decimal	29	114	*n*
[Range]	$1 \le n \le 3$			
	$49 \le n \le 51$			

GS r *n* transmits the status specified by ***n*** as follows: paper sensor status as 1 byte of data when ***n***=1 or 49, drawer kick-out connector status when ***n***=2 or 50, and slip paper status when ***n***=3 or 51.

Paper sensor status (***n***=1, 49)

Bit	Off/On	Hex	Decimal	Status
0	Off	00	0	Journal near-end sensor: paper adequate.
	On	01	1	Journal near-end sensor: paper near end.
1	Off	00	0	Receipt near-end sensor: paper adequate.
	On	02	2	Receipt near-end sensor: paper near end.
2	Off	00	0	Journal end sensor: paper present.
	On	04	4	Journal end sensor: paper not present.
3	Off	00	0	Receipt end sensor: paper present.
	On	08	8	Receipt end sensor: paper not present.
4	Off	00	0	Not used. Fixed to Off.
5	Off	00	0	Slip insertion sensor: paper present.
	On	20	32	Slip insertion sensor: paper not present.
6	Off	00	0	Slip ejection sensor: paper present.
	On	40	64	Slip ejection sensor: paper not present.
7	Off	00	0	Not used. Fixed to Off.

Drawer kick-out connector status (***n***=2, 50)

Bit	Off/On	Hex	Decimal	Status
0	Off	00	0	Drawer kick-out connector pin 3 is LOW.
	On	01	1	Drawer kick-out connector pin 3 is HIGH.
1-3	—	—	—	Undefined.
4	Off	00	0	Not used. Fixed to Off.
5,6	—	—	—	Undefined.
7	Off	00	0	Not used. Fixed to Off.

Slip paper status (***n***=3, 51)

Value	Slip Paper Status
00000000B	There is no printing area on the current slip or slip paper is not selected.
00000001B	It is possible to print one line excluding double-height characters on the current slip.
00000010B	It is possible to print one line including double-height characters on the current slip.
00000011B	It is possible to print one more line.

.

Program Example

```
PRINT #1, CHR$(&H1D);"r";CHR$(1); ← Transmits paper sensor status
```

DLE EOT *n*

[Name] Transmit real-time status

[Format]

ASCII	DLE	EOT	*n*
Hex	10	04	*n*
Decimal	16	4	*n*

[Range] $1 \leq n \leq 5$

DLE EOT *n* transmits the specified status in real time. This command is executed if the printer is off-line, the print buffer is full, or an error occurs. This command is ignored when transmitting the check paper reading result (for the MICR specification). The variable ***n*** indicates the status function as follows:

n	Function
1	Transmit printer status
2	Transmit off-line status
3	Transmit error status
4	Transmit paper roll sensor status
5	Transmit slip paper status

Program Example

```
PRINT #1, CHR$(&H10);CHR$(&H4);CHR$(2); ← Transmits off-line status
```

Printer status (***n***=1)

Bit	Off/On	Hex	Decimal	Function
0	Off	00	0	Not used. Fixed to Off.
1	On	02	2	Not used. Fixed to On.
2	Off	00	0	Drawer kick-out connector pin 3 is LOW.
	On	04	0	Drawer kick-out connector pin 3 is HIGH.
3	Off	00	0	On-line.
	On	08	8	Off-line.
4	On	10	16	Not used. Fixed to On.
5	Off	00	0	Undefined. Fixed to Off.
6	Off	00	0	Undefined. Fixed to Off.
7	Off	00	0	Not used. Fixed to Off.

Off-line status (***n***=2)

Bit	Off/On	Hex	Decimal	Function
0	Off	00	0	Not used. Fixed to Off.
1	On	02	2	Not used. Fixed to On.
2	Off	00	0	Cover is closed.
	On	04	4	Cover is open.
3	Off	00	0	Paper is not being fed by the PAPER FEED button.
	On	08	8	Paper is being fed by the PAPER FEED button.
4	On	10	16	Not used. Fixed to On.
5	Off	00	0	No paper-end stop.
	On	20	32	Printing stops due to paper-end.
6	Off	00	0	No error.
	On	40	64	Error occurs.
7	Off	00	0	Not used. Fixed to Off.

Error status (***n***=3)

Bit	Off/On	Hex	Decimal	Function
0	Off	00	0	Not used. Fixed to Off.
1	On	02	2	Not used. Fixed to On.
2	Off	00	0	No mechanical error.
	On	04	4	Mechanical error occurred.

Bit	Off/On	Hex	Decimal	Function
3	Off	00	0	No auto-cutter error.
	On	08	8	Auto-cutter error occurred.
4	On	10	16	Not used. Fixed to On.
5	Off	00	0	No unrecoverable error.
	On	20	32	Unrecoverable error occurred.
6	Off	00	0	No temperature error.
	On	40	64	Temperature error occurred.
7	Off	00	0	Not used. Fixed to Off.

Paper roll sensor status (***n***=4)

Bit	Off/On	Hex	Decimal	Function
0	Off	00	0	Not used. Fixed to Off.
1	On	02	2	Not used. Fixed to On.
2	Off	00	0	Journal near-end sensor: paper adequate.
	On	04	4	Journal near-end sensor: paper near end.
3	Off	00	0	Receipt near-end sensor: paper adequate.
	On	08	8	Receipt near-end sensor: paper near end.
4	On	10	16	Not used. Fixed to On.
5	Off	00	0	Journal end sensor: paper present.
	On	20	32	Journal end sensor: paper not present.
6	Off	00	0	Receipt end sensor: paper present.
	On	40	64	Receipt end sensor: paper not present.
7	Off	00	0	Not used. Fixed to Off.

Slip paper status (***n***=5)

Bit	Off/On	Hex	Decimal	Function
0	Off	00	0	Not used. Fixed to Off.
1	On	02	2	Not used. Fixed to On.
2	Off	00	0	Slip paper selected.
	On	04	4	Slip paper not selected.
3	Off	00	0	Does not wait for slip paper insertion.
	On	08	8	Waits for slip paper insertion.
4	On	10	16	Not used. Fixed to On.
5	Off	00	0	Slip is detected by the slip insertion sensor.
	On	20	32	Slip is not detected by the slip insertion sensor.

Bit	Off/On	Hex	Decimal	Function
6	Off	00	0	Slip is detected by the slip ejection sensor.
	On	40	64	Slip is not detected by the slip ejection sensor.
7	Off	00	0	Not used. Fixed to Off.

ESC u *n*

[Name] Transmit peripheral device status

[Format]				
	ASCII	ESC	u	*n*
	Hex	1B	75	*n*
	Decimal	27	117	*n*

[Range] *n* = 0, 48

ESC u *n* transmits the status of drawer kick-out connector pin 3 as 1 byte of data when ***n***=0 or 48. This command allows the host to determine the status of a peripheral device. **GS r 2** can also be used to check the status. **GS r** is recommended for transmitting the peripheral device status. ***n*** indicates the status function as follows:

Bit	Off/On	Hex	Decimal	Status
0	Off	00	0	Drawer kick-out connector pin 3 is LOW.
	On	01	1	Drawer kick-out connector pin 3 is HIGH.
2, 3	—	—	—	Undefined.
4	Off	00	0	Not used. Fixed to Off.
5, 6	—	—	—	Undefined.
7	Off	00	0	Not used. Fixed to Off.

Program Example

```
PRINT #1, CHR$(&H1B);"p";CHR$(0);CHR$(25);CHR$(250); ← Generates a pulse
PRINT #1, CHR$(&H1B);"u";CHR$(0);
```

ESC v

[Name] Transmit paper sensor status

[Format]			
	ASCII	ESC	v
	Hex	1B	76
	Decimal	27	118

ESC v transmits the status of a paper sensor as 1 byte of data. This command allows the host to obtain the near-end or paper-out status for each line. **GS r 1** can also be used to check the status. **GS r** is recommended for transmitting the paper sensor status. The status to be transmitted is shown in the table below.

Bit	Off/On	Hex	Decimal	Status
0	Off	00	0	Journal near-end sensor: paper adequate.
	On	01	1	Journal near-end sensor: paper near end.
1	Off	00	0	Receipt near-end sensor: paper adequate.
	On	02	2	Receipt near-end sensor: paper near end.
2	Off	00	0	Journal end sensor: paper present.
	On	04	4	Journal end sensor: paper not present.
3	Off	00	0	Receipt end sensor: paper present.
	On	08	8	Receipt end sensor: paper not present.
4	Off	00	0	Not used. Fixed to Off.
5	Off	00	0	Slip insertion sensor: paper present.
	On	20	32	Slip insertion sensor: paper not present.
6	Off	00	0	Slip ejection sensor: paper present.
	On	40	64	Slip ejection sensor: paper not present.
7	Off	00	0	Not used. Fixed to Off.

Program Example

```
PRINT #1, CHR$(&H1B);"v";
```

GS ENQ

[Name] Transmit real-time printer status

[Format]

	ASCII	GS	ENQ
	Hex	1D	05
	Decimal	29	5

GS ENQ transmits the printer status as 1 byte of data in real time. This command is executed even if the printer is off-line, the receive buffer is full, or an error occurs. **DLE EOT** is recommended for transmitting the real-time printer status. The status to be transmitted is shown in the table below.

Bit	Off/On	Hex	Decimal	Status
0	Off	00	0	Paper roll near-end sensor: paper adequate.
	On	01	1	Journal near-end sensor: paper near end.
1	Off	00	0	Receipt near-end sensor: paper adequate.
	On	02	2	Receipt near-end sensor: paper near end.

Bit	Off/On	Hex	Decimal	Status
2	Off	00	0	Cover closed.
	On	04	4	Cover open.
3	Off	00	0	On-line.
	On	08	8	Off-line.
4	Off	00	0	Drawer kick-out connector pin 3 is LOW.
	On	10	16	Drawer kick-out connector pin 3 is HIGH.
5	Off	00	0	Slip insertion sensor: paper present.
	On	20	32	Slip insertion sensor: paper not present.
6	Off	00	0	No error.
	On	40	64	Error.
7	Off	00	0	Not used. Fixed to Off.

Program Example

```
PRINT #1, CHR$(&H1D);CHR$(&H5);
```

DLE EOT BS *n*

[Name] Transmit real-time MICR status

[Format]

ASCII	DLE	EOT	BS	*n*
Hex	10	04	08	*n*
Decimal	16	4	8	*n*

[Range] *n* = 1

DLE EOT BS *n* transmits the selected MICR status specified by ***n*** in real time as follows:

n	Function
1	Transmit MICR status

The status information to be transmitted is shown in the table below.

Bit	Off/On	Hex	Decimal	Function
0	Off	00	0	Not used. Fixed to Off.
1	On	02	2	Not used. Fixed to On.
2	Off	00	0	MICR function selected.
	On	04	4	MICR function not selected.
3	Off	00	0	Check paper or cleaning sheet insertion: not waiting.
	On	08	8	Check paper or cleaning sheet insertion: waiting.

Bit	Off/On	Hex	Decimal	Function
4	On	10	16	Not used. Fixed to On.
5	Off	00	0	Check insertion sensor: paper present.
	On	20	32	Check insertion sensor: paper not present.
6	Off	00	0	Check ejection sensor: paper present.
	On	40	64	Check ejection sensor: paper not present.
7	Off	00	0	Not used. Fixed to Off.

.

Program Example

```
PRINT #1, CHR$(&H10);CHR$(&H4);CHR$(&H8);CHR$(1); ←Transmits MICR status
```

Mechanism Control Commands

The TM-U950/U950P supports the following mechanism control commands.

Command	Name
ESC <	Return home
ESC U	Turn unidirectional printing mode on/off
ESC i	Partial cut (one point left uncut)
ESC m	Partial cut (three points left uncut)
ESC o	Stamp

ESC <

[Name] Return home

[Format]

ASCII	ESC	<
Hex	1B	3C
Decimal	27	60

ESC < moves the print head to the home position.

Program Example

```
PRINT #1, CHR$(&H1B);"<";
```

ESC U *n*

[Name]	Turn unidirectional printing mode on/off			
[Format]	ASCII	ESC	U	*n*
	Hex	1B	55	*n*
	Decimal	27	85	*n*
[Range]	$0 \le n \le 255$			

ESC U *n* turns unidirectional printing mode on or off. When the LSB (least significant bit) of ***n*** is 1, unidirectional printing is turned on; when it is 0, unidirectional printing is turned off and bidirectional printing mode is turned on. Unidirectional printing can be turned on when printing double-height characters to ensure that the top and bottom of the characters are aligned. The default setting is ***n***=0.

Program Example

```
PRINT #1, CHR$(&H1B);"U";CHR$(1); ← Unidirectional printing mode turned on
```

ESC i

[Name]	Partial cut (one point left uncut)		
[Format]	ASCII	ESC	i
	Hex	1B	69
	Decimal	27	105

ESC m

[Name]	Partial cut (three points left uncut)		
[Format]	ASCII	ESC	m
	Hex	1B	6D
	Decimal	27	109

ESC o

[Name]	Stamp		
[Format]	ASCII	ESC	o
	Hex	1B	6F
	Decimal	27	111

ESC i executes a partial cut of the receipt with one point left uncut.

ESC m executes a partial cut of the receipt with three points left uncut.

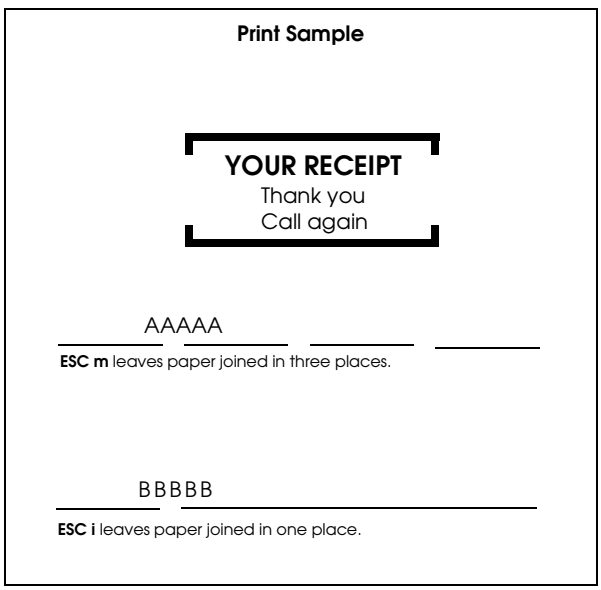
When using the above commands, there is a gap between the auto-cutter, print, and stamp positions. The paper roll is selected for the print sheet. These commands are effective only when input at the beginning of a line.

ESC o executes stamp printing on the receipt. This command is enabled only when input at the beginning of a line and only when receipt paper is selected. When using this command, there is a gap between the stamp position and the print position.

Program Example

```
PRINT #1, CHR$(&H1B);"c0";CHR$(2); ← Select receipt
PRINT #1, CHR$(&H1B);"o"; ← Stamp
PRINT #1, CHR$(&H1B);"d";CHR$(13);
PRINT #1, "          AAAAA";
PRINT #1, CHR$(&H1B);"J";CHR$(250);
PRINT #1, CHR$(&H1B);"m"; ← Cut paper
PRINT #1, "          BBBBB";
PRINT #1, CHR$(&H1B);"J";CHR$(250);
PRINT #1, CHR$(&H1B);"i"; ← Cut paper
```

Print Sample



MICR Commands

The TM-U950/U950P (with MICR reader) supports the following MICR function commands. MICR status can be confirmed by the **DLE EOT BS** command. Refer to the Status Commands section for details.

Command	Name
FS c	MICR mechanism cleaning
FS a 0	Read check paper
FS b	Request retransmission of check paper reading result
FS a 1	Load check paper to print starting position
FS a 2	Eject check paper

FS c

[Name] MICR mechanism cleaning

[Format]	ASCII	FS	c
	Hex	1C	63
	Decimal	28	99

FS c cleans the MICR mechanism. When this command is executed, the printer enters cleaning sheet wait status. Insert the cleaning sheet into the check paper entrance. After cleaning the MICR mechanism, the printer automatically selects the default paper type for **ESC c 0**. This command is enabled only when input at the beginning of a line.

Program Example

```
PRINT #1, CHR$(&H1C);"c"
```

FS a 0 *n*

[Name]	Read check paper				
[Format]	ASCII	FS	a	0	*n*
	Hex	1C	61	30	*n*
	Decimal	28	97	48	*n*

[Range] $1 \le n \le 255$

FS a 0 *n* selects the MICR function and reads the check paper. When changing readable waveforms to character data, ***n***=0 specifies a readable font as E13B and ***n***=1 specifies a readable font as CMC7. After ending MICR reading normally, the printer transmits header + reading status + identified character strings + NULL to the host computer. In other cases, the printer transmits header + reading status + NULL to the host computer.

Header: 5FH (decimal 95)

NULL: 00H (decimal 0)

Program Example

```
PRINT #1, CHR$(&H1C);"a0";CHR$(0); ← Specifies readable font as E13B
```

Each bit of ***n*** is used as shown below.

Reading status:

Bit	Off/On	Hex	Decimal	Function
0	Off	00	0	Readable fonts. See the table below.
	On	01	1	
1	Off	00	0	
	On	02	2	
2, 3	—	—	—	Undefined.
4	Off	00	0	Rereading possible.
	On	10	16	Rereading not possible.
5	Off	00	0	Reading normal.
	On	20	32	Reading not normal.
6	On	40	64	Not used. Fixed to On.
7	Off	00	0	Not used. Fixed to Off.

Readable fonts:

Bit 1	Bit 0	Font
Off	Off	E13B
Off	On	CMC7
On	Off	Undefined
On	On	Undefined

FS b

[Name] Request retransmission of check paper reading result

[Format]			
	ASCII	FS	b
	Hex	1C	62
	Decimal	28	98

FS b retransmits the previous check paper (MICR character) reading results. The transmitted information is the same as that previously sent by **FS a 0**. If **FS a 0** is not executed before **FS b**, the printer transmits the reading status as "not normal."

Program Example

```
PRINT #1, CHR$(&H1C);"b";
```

FS a 1

[Name]	Load check paper to print starting position			
[Format]	ASCII	FS	a	1
	Hex	1C	61	31
	Decimal	28	97	49

FS a 1 loads check paper to the print starting position. After loading the check paper, the printer cancels the MICR function and automatically selects slip paper. This command is ignored unless the MICR function is selected.

Program Example

```
PRINT #1, CHR$(&H1C);"a1";
PRINT #1, "AAAAA";CHR$(&HA);
```

FS a 2

[Name]	Eject check paper			
[Format]	ASCII	FS	a	2
	Hex	1C	61	32
	Decimal	28	97	50

FS a 2 ejects the check paper. After ejecting the check, the printer cancels the MICR function and automatically selects the default paper type for **ESC c 0**. This command is ignored unless the MICR function is selected.

Program Example

```
PRINT #1, CHR$(&H1C);"a2";
```

Miscellaneous Function Commands

The TM-U950/U950P supports the following miscellaneous function commands.

Command	Name
GS P	Set horizontal and vertical motion units
ESC @	Initialize printer
GS E	Select print speed and head energizing time
GS I	Transmit printer ID
ESC p	Generate pulse
ESC =	Select peripheral device status
DLE ENQ	Real-time request to printer

GS P *x y*

[Name]	Set horizontal and vertical motion units				
[Format]	ASCII	GS	P	*x*	*y*
	Hex	1D	50	*x*	*y*
	Decimal	29	80	*x*	*y*
[Range]	$0 \le x \le 255$				
	$0 \le y \le 255$				

GS P *x y* sets the horizontal and vertical motion units to $1/x$ and $1/y$ inches, respectively. The horizontal and vertical motion units indicate the minimum pitch used for calculating the values of related commands (shown below). The default values are ***x***=150 and ***y***=144. The calculated result when using this command and the line spacing command is truncated to the minimum value of the mechanical pitch (1/150 inch horizontal and 1/144 inch vertical) or an exact multiple of that minimum value. The horizontal value 1/150 inch and the vertical value 1/144 inch each correspond to a half-dot pitch.

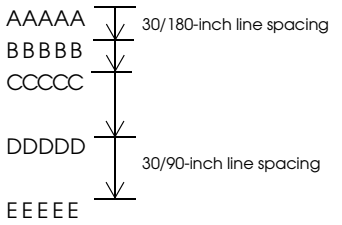
Commands used with the horizontal motion unit ($1/x$): **ESC SP**, **ESC $**, **ESC **

Commands used with the vertical motion unit ($1/y$): **ESC 3**, **ESC J**, **ESC K**

Program Example

```
PRINT #1, CHR$(&H1D);"P";CHR$(180);CHR$(180);
PRINT #1, CHR$(&H1B);"3";CHR$(30); ← Set line spacing
PRINT #1, "AAAAA"; CHR$(&HA);
PRINT #1, "B B B B B"; CHR$(&HA);
PRINT #1, CHR$(&H1D);"P";CHR$(180);CHR$(90);
PRINT #1, CHR$(&H1B);"3";CHR$(30); ← Set line spacing
PRINT #1, "CCCCC"; CHR$(&HA);
PRINT #1, "DDDDD"; CHR$(&HA);
PRINT #1, "E E E E E"; CHR$(&HA);
```

Print Sample



ESC @

[Name] Initialize printer

[Format]	ASCII	ESC	@
	Hex	1B	40
	Decimal	27	64

ESC @ initializes the printer. All settings, including character font and line spacing settings, are canceled.

Program Example

```
PRINT #1, CHR$(&H1B);"!";CHR$(&H56);
PRINT #1, "AAAAA"; CHR$(&HA);
PRINT #1, CHR$(&H1B);"@";
PRINT #1, "B B B B B "; CHR$(&HA);
```

Print Sample

AAAAA

BBBBB ← All settings are canceled after **ESC @** is executed

GS E *n*

[Name] Select print speed and head energizing time

[Format]	ASCII	GS	E	*n*
	Hex	1D	45	*n*
	Decimal	29	69	*n*

[Range] $0 \le n \le 255$

GS E *n* sets the print speed and head energizing time corresponding to the currently selected paper type. The default settings are Normal (***n***=1) or Low (***n***=17) (depending on the DIP switch settings) when a paper roll (receipt or journal) is selected and Copy (***n***=16) when slip paper is selected. Independent settings can be used for each paper type. This command is enabled only when input at the beginning of a line. The bit value of ***n*** is used as follows:

Bit	Off/On	Hex	Decimal	Function
0	Off	00	0	Short head energizing time.
	On	01	1	Long head energizing time.
1-3	—	—	—	Undefined.
4	Off	00	0	High printing speed.
	On	10	16	Low printing speed.
5-7	—	—	—	Undefined.

High printing speed cannot be set when the head energizing time is Copy.

n is used as follows:

n	**Speed**	**Print Head**	**Mode**	**Default Value**	
				Paper Roll	**Slip**
1	High	Normal	Normal	Selectable by DIP switch	
16	Low	Copy	Copy		Default
17	Low	Normal	Low	Selectable by DIP switch	

Program Example

```
PRINT #1, CHR$(&H1D);"E";CHR$(16); ← Select Copy mode
```

GS I *n*

[Name] Transmit printer ID

[Format]	ASCII	GS	I	*n*
	Hex	1D	49	*n*
	Decimal	29	73	*n*

[Range] $1 \le n \le 3$

$49 \le n \le 51$

GS I *n* transmits the printer ID specified by ***n*** below. Each printer ID consists of 1 byte of data. The value of bit 2 or 50 depends on the settings of DIP switch 1-6.

n	**Printer ID**	**Specification**	**ID (hexadecimal)**
1, 49	Printer model ID	TM-U950/U950P	09H
2, 50	Type ID	See table below.	
3, 51	ROM version ID	ROM version	Refer to current ROM version.

Type ID (***n***=2 or 50)

Bit	**Off/On**	**Hex**	**Decimal**	**Function**
0	Off	00	0	Two-byte character code. Fixed to Off.
1	On	02	2	Auto-cutter enabled. Fixed to On.
2	Off	00	0	DIP switch 1-6 setting Off.
	On	04	4	DIP switch 1-6 setting On.
3	Off	00	0	MICR function disabled.
	On	08	8	MICR function enabled.

Bit	Off/On	Hex	Decimal	Function
4	Off	00	0	Not used. Fixed to Off.
5, 6	—	—	—	Undefined.
7	Off	00	0	Not used. Fixed to Off.

Program Example

```
PRINT #1, CHR$(&H1D);"I";CHR$(1); ← Transmits printer ID
```

ESC p *m t1 t2*

[Name] Generate pulse

[Format]	ASCII	ESC	p	*m*	*t1*	*t2*
	Hex	1B	70	*m*	*t1*	*t2*
	Decimal	27	112	*m*	*t1*	*t2*

[Range] $m = 0, 1, 48, 49$

$0 \le t1 \le 255$

$0 \le t2 \le 255$

ESC p *m t1 t2* sends a pulse (on time= ***t1*** × 10 ms / off time= ***t2*** × 10 ms) to the specified connector pin. When ***m***=0 or 48, the pulse is sent to drawer-kick-out connector pin 2; when ***m***=1 or 49, the pulse is sent to drawer-kick-out connector pin 5.

Program Example

```
PRINT #1, CHR$(&H1B);"p";CHR$(0);CHR$(25);CHR$(250);
```

ESC = *n*

[Name] Select peripheral device status

[Format]	ASCII	ESC	=	*n*
	Hex	1B	3D	*n*
	Decimal	27	61	*n*

[Range] $0 \le n \le 255$

ESC = *n* selects the device to which the host computer sends data, based on the value of *n* as follows**:**

Bit	Off/On	Hex	Decimal	Function
0	Off	00	0	Printer disabled.
	On	01	1	Printer enabled.
1	Off	00	0	Customer display disabled.
	On	02	2	Customer display enabled.
2-7	–	–	–	Undefined.

When the printer is disabled, it ignores all received data, with the exception of the **DLE ENQ 1** and **DLE ENQ 2** commands. The default setting depends on DIP switch 1-6.

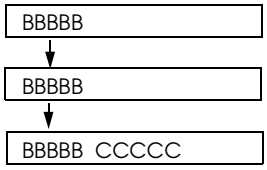
Program Example

```
PRINT #1, CHR$(&H1B);"=";CHR$(1);← Printer enabled
PRINT #1, "A A A A A ";
PRINT #1, CHR$(&H1B);"=";CHR$(2);← Only customer display enabled
PRINT #1, "B B B B B ";
PRINT #1, CHR$(&H1B);"=";CHR$(3);← Both printer and customer display enabled
PRINT #1, "CCCCC"; CHR$(&HA);
```

Print Sample

AAAAACCCCC

Customer Display Sample



DLE ENQ *n*

[Name] Real-time request to printer

[Format]	ASCII	DLE	ENQ	*n*
	Hex	10	05	*n*
	Decimal	16	5	*n*

[Range] $1 \le n \le 3$

DLE ENQ *n* responds to a request from the host computer specified by ***n*** as shown below. This command is also executed when the printer is off-line, the receive buffer is full, or an error occurs. ***n*** can be set to 1 or 2 only when a recoverable error occurs, with the exception of a print head temperature error. ***n*** can be set to 3 only when the printer is in the slip insertion waiting state.

n	**Request**
1	Restarts printing from the beginning of the line where an error occurred, after recovering from the error.
2	Recovers from an error after clearing the receive and print buffers.
3	Cancels the slip waiting status.

Program Example

```
PRINT #1, CHR$(&H10);CHR$(&H5);CHR$(3); ← Cancels slip insertion waiting state
```

Character Code Tables

SP in a table represents space.

Page 0 (PC437: U.S.A., Standard Europe) (International character set: U.S.A)

	HEX	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
HEX	BIN	0000	0001	0010	0011	0100	0101	0110	0111	1000	1001	1010	1011	1100	1101	1110	1111
0	0000	NUL 00	DLE 16	SP 32	0 48	@ 64	P 80	` 96	p 112	Ç 128	É 144	á 160	▒ 176	└ 192	┴ 208	α 224	≡ 240
1	0001	01	17	! 33	1 49	A 65	Q 81	a 97	q 113	ü 129	æ 145	í 161	▒ 177	┴ 193	┬ 209	β 225	± 241
2	0010	02	18	" 34	2 50	B 66	R 82	b 98	r 114	é 130	Æ 146	ó 162	▒ 178	┬ 194	╥ 210	Γ 226	≥ 242
3	0011	03	19	# 35	3 51	C 67	S 83	c 99	s 115	â 131	ô 147	ú 163	│ 179	├ 195	╙ 211	π 227	≤ 243
4	0100	EOT 04	20	$ 36	4 52	D 68	T 84	d 100	t 116	ä 132	ö 148	ñ 164	┤ 180	─ 196	╘ 212	Σ 228	⌠ 244
5	0101	ENQ 05	21	% 37	5 53	E 69	U 85	e 101	u 117	à 133	ò 149	Ñ 165	╡ 181	┼ 197	╒ 213	σ 229	⌡ 245
6	0110	06	22	& 38	6 54	F 70	V 86	f 102	v 118	å 134	û 150	ª 166	╢ 182	╞ 198	╓ 214	µ 230	÷ 246
7	0111	07	23	' 39	7 55	G 71	W 87	g 103	w 119	ç 135	ù 151	º 167	╖ 183	╟ 199	╫ 215	τ 231	≈ 247
8	1000	BS 08	24	(40	8 56	H 72	X 88	h 104	x 120	ê 136	ÿ 152	¿ 168	╕ 184	╚ 200	╪ 216	Φ 232	° 248
9	1001	09	25	) 41	9 57	I 73	Y 89	i 105	y 121	ë 137	Ö 153	⌐ 169	╣ 185	╔ 201	┘ 217	Θ 233	• 249
A	1010	LF 10	26	* 42	: 58	J 74	Z 90	j 106	z 122	è 138	Ü 154	¬ 170	║ 186	╩ 202	┌ 218	Ω 234	· 250
B	1011	ESC 11	27	+ 43	; 59	K 75	[91	k 107	{ 123	ï 139	¢ 155	½ 171	╗ 187	╦ 203	█ 219	δ 235	√ 251
C	1100	FF 12	FS 28	, 44	< 60	L 76	\ 92	l 108	¦ 124	î 140	£ 156	¼ 172	╝ 188	╠ 204	▄ 220	∞ 236	n 252
D	1101	CR 13	GS 29	− 45	= 61	M 77	] 93	m 109	} 125	ì 141	¥ 157	¡ 173	╜ 189	═ 205	▌ 221	ø 237	² 253
E	1110	14	RS 30	. 46	> 62	N 78	^ 94	n 110	~ 126	Ä 142	₧ 158	« 174	╛ 190	╬ 206	▐ 222	∈ 238	■ 254
F	1111	15	31	/ 47	? 63	O 79	_ 95	o 111	SP 127	Å 143	ƒ 159	» 175	┐ 191	╧ 207	▀ 223	∩ 239	SP 255

Page 1 (Katakana)

	HEX	8	9	A	B	C	D	E	F
HEX	BIN	1000	1001	1010	1011	1100	1101	1110	1111
0	0000	ー 128	丄 144	SP 160	ー 176	タ 192	ミ 208	二 224	× 240
1	0001	▬ 129	丅 145	。 161	ア 177	チ 193	ム 209	卜 225	円 241
2	0010	▬ 130	丬 146	「 162	イ 178	ツ 194	メ 210	丰 226	年 242
3	0011	▬ 131	卜 147	」 163	ウ 179	テ 195	モ 211	彐 227	月 243
4	0100	▬ 132	一 148	、 164	エ 180	ト 196	ヤ 212	◢ 228	日 244
5	0101	■ 133	一 149	・ 165	オ 181	ナ 197	ユ 213	◣ 229	時 245
6	0110	■ 134	丨 150	ヲ 166	カ 182	ニ 198	ヨ 214	◥ 230	分 246
7	0111	■ 135	丨 151	ァ 167	キ 183	ヌ 199	ラ 215	◤ 231	秒 247
8	1000	丨 136	厂 152	ィ 168	ク 184	ネ 200	リ 216	♠ 232	〒 248
9	1001	▌ 137	冂 153	ゥ 169	ケ 185	ノ 201	ル 217	♥ 233	市 249
A	1010	▌ 138	乚 154	ェ 170	コ 186	ハ 202	レ 218	✦ 234	区 250
B	1011	▌ 139	亅 155	ォ 171	サ 187	ヒ 203	ロ 219	♣ 235	町 251
C	1100	▌ 140	𠂉 156	ャ 172	シ 188	フ 204	ワ 220	● 236	村 252
D	1101	▌ 141	丶 157	ュ 173	ス 189	ヘ 205	ン 221	○ 237	人 253
E	1110	▌ 142	乀 158	ョ 174	セ 190	ホ 206	゛ 222	／ 238	▒ 254
F	1111	┼ 143	丿 159	ッ 175	ソ 191	マ 207	゜ 223	＼ 239	SP 255

Page 2 (PC850: Multilingual)

	HEX	8	9	A	B	C	D	E	F
HEX	BIN	1000	1001	1010	1011	1100	1101	1110	1111
0	0000	Ç 128	É 144	á 160	▒ 176	└ 192	ð 208	Ó 224	— 240
1	0001	ü 129	æ 145	í 161	▒ 177	┴ 193	Ð 209	ß 225	± 241
2	0010	é 130	Æ 146	ó 162	▒ 178	┬ 194	Ê 210	Ô 226	‗ 242
3	0011	â 131	ô 147	ú 163	│ 179	├ 195	Ë 211	Ò 227	¾ 243
4	0100	ä 132	ö 148	ñ 164	┤ 180	─ 196	È 212	õ 228	¶ 244
5	0101	à 133	ò 149	Ñ 165	Á 181	┼ 197	ı 213	Õ 229	§ 245
6	0110	å 134	û 150	ª 166	Â 182	ã 198	Í 214	µ 230	÷ 246
7	0111	ç 135	ù 151	º 167	À 183	Ã 199	Î 215	þ 231	¸ 247
8	1000	ê 136	ÿ 152	¿ 168	© 184	╚ 200	Ï 216	Þ 232	° 248
9	1001	ë 137	Ö 153	® 169	╣ 185	╔ 201	┘ 217	Ú 233	¨ 249
A	1010	è 138	Ü 154	¬ 170	║ 186	╩ 202	┌ 218	Û 234	· 250
B	1011	ï 139	ø 155	½ 171	╗ 187	╦ 203	■ 219	Ù 235	¹ 251
C	1100	î 140	£ 156	¼ 172	╝ 188	╠ 204	▄ 220	ý 236	³ 252
D	1101	ì 141	Ø 157	¡ 173	¢ 189	═ 205	¦ 221	Ý 237	² 253
E	1110	Ä 142	× 158	« 174	¥ 190	╬ 206	Ì 222	¯ 238	▪ 254
F	1111	Å 143	ƒ 159	» 175	┐ 191	¤ 207	▀ 223	´ 239	SP 255

Page 3 (PC860: Portuguese)

	HEX	8	9	A	B	C	D	E	F
HEX	BIN	1000	1001	1010	1011	1100	1101	1110	1111
0	0000	Ç 128	É 144	á 160	▒ 176	└ 192	╨ 208	α 224	≡ 240
1	0001	ü 129	À 145	í 161	▒ 177	┴ 193	╤ 209	ß 225	± 241
2	0010	é 130	È 146	ó 162	▒ 178	┬ 194	╥ 210	Γ 226	≥ 242
3	0011	â 131	ô 147	ú 163	│ 179	├ 195	╙ 211	π 227	≤ 243
4	0100	ã 132	õ 148	ñ 164	┤ 180	─ 196	╘ 212	Σ 228	⌠ 244
5	0101	à 133	ò 149	Ñ 165	╡ 181	┼ 197	╒ 213	σ 229	⌡ 245
6	0110	Á 134	Ú 150	ª 166	╢ 182	╞ 198	╓ 214	µ 230	÷ 246
7	0111	ç 135	ù 151	º 167	╖ 183	╟ 199	╫ 215	τ 231	≈ 247
8	1000	ê 136	Ì 152	¿ 168	╕ 184	╚ 200	╪ 216	Φ 232	° 248
9	1001	Ê 137	Õ 153	Ò 169	╣ 185	╔ 201	┘ 217	Θ 233	• 249
A	1010	è 138	Ü 154	¬ 170	║ 186	╩ 202	┌ 218	Ω 234	· 250
B	1011	Í 139	¢ 155	½ 171	╗ 187	╦ 203	■ 219	δ 235	√ 251
C	1100	Ô 140	£ 156	¼ 172	╝ 188	╠ 204	▄ 220	∞ 236	n 252
D	1101	ì 141	Ù 157	¡ 173	╜ 189	═ 205	▌ 221	ø 237	² 253
E	1110	Ã 142	₧ 158	« 174	╛ 190	╬ 206	▐ 222	∈ 238	■ 254
F	1111	Ã 143	Ó 159	» 175	┐ 191	╧ 207	▀ 223	∩ 239	SP 255

Page 4 (PC863: Canadian-French)

	HEX	8	9	A	B	C	D	E	F
HEX	BIN	1000	1001	1010	1011	1100	1101	1110	1111
0	0000	Ç 128	É 144	¦ 160	▒ 176	└ 192	╨ 208	α 224	≡ 240
1	0001	ü 129	È 145	´ 161	▒ 177	┴ 193	╤ 209	ß 225	± 241
2	0010	é 130	Ê 146	ó 162	▓ 178	┬ 194	╥ 210	Γ 226	≥ 242
3	0011	â 131	ô 147	ú 163	│ 179	├ 195	╙ 211	π 227	≤ 243
4	0100	Â 132	Ë 148	¨ 164	┤ 180	─ 196	╘ 212	Σ 228	⌠ 244
5	0101	à 133	ï 149	¸ 165	╡ 181	┼ 197	╒ 213	σ 229	⌡ 245
6	0110	¶ 134	û 150	ª 166	╢ 182	╞ 198	╓ 214	µ 230	÷ 246
7	0111	ç 135	ù 151	¯ 167	╖ 183	╟ 199	╫ 215	τ 231	≈ 247
8	1000	ê 136	¤ 152	î 168	╕ 184	╚ 200	╪ 216	Φ 232	° 248
9	1001	ë 137	Ô 153	⌐ 169	╣ 185	╔ 201	┘ 217	Θ 233	• 249
A	1010	è 138	Ü 154	¬ 170	║ 186	╩ 202	┌ 218	Ω 234	· 250
B	1011	ï 139	¢ 155	½ 171	╗ 187	╦ 203	▉ 219	δ 235	√ 251
C	1100	î 140	£ 156	¼ 172	╝ 188	╠ 204	▄ 220	∞ 236	n 252
D	1101	═ 141	Ù 157	¾ 173	╜ 189	═ 205	▌ 221	ø 237	² 253
E	1110	Ä 142	Û 158	« 174	╛ 190	╬ 206	▐ 222	∈ 238	■ 254
F	1111	§ 143	ƒ 159	» 175	┐ 191	╧ 207	▀ 223	∩ 239	SP 255

Page 5 (PC865: Nordic)

	HEX	8	9	A	B	C	D	E	F
HEX	BIN	1000	1001	1010	1011	1100	1101	1110	1111
0	0000	Ç 128	É 144	á 160	▒ 176	└ 192	╨ 208	α 224	≡ 240
1	0001	ü 129	æ 145	í 161	▒ 177	┴ 193	╤ 209	ß 225	± 241
2	0010	é 130	Æ 146	ó 162	▓ 178	┬ 194	╥ 210	Γ 226	≥ 242
3	0011	â 131	ô 147	ú 163	│ 179	├ 195	╙ 211	π 227	≤ 243
4	0100	ä 132	ö 148	ñ 164	┤ 180	─ 196	╘ 212	Σ 228	⌠ 244
5	0101	à 133	ò 149	Ñ 165	╡ 181	┼ 197	╒ 213	σ 229	⌡ 245
6	0110	å 134	û 150	ª 166	╢ 182	╞ 198	╓ 214	µ 230	÷ 246
7	0111	ç 135	ù 151	º 167	╖ 183	╟ 199	╫ 215	τ 231	≈ 247
8	1000	ê 136	ÿ 152	¿ 168	╕ 184	╚ 200	╪ 216	Φ 232	° 248
9	1001	ë 137	Ö 153	⌐ 169	╣ 185	╔ 201	┘ 217	Θ 233	• 249
A	1010	è 138	Ü 154	¬ 170	║ 186	╩ 202	┌ 218	Ω 234	· 250
B	1011	ï 139	ø 155	½ 171	╗ 187	╦ 203	▉ 219	δ 235	√ 251
C	1100	î 140	£ 156	¼ 172	╝ 188	╠ 204	▄ 220	∞ 236	n 252
D	1101	ì 141	Ø 157	¡ 173	╜ 189	═ 205	▌ 221	ø 237	² 253
E	1110	Ä 142	₧ 158	« 174	╛ 190	╬ 206	▐ 222	∈ 238	■ 254
F	1111	Å 143	ƒ 159	¤ 175	┐ 191	╧ 207	▀ 223	∩ 239	SP 255

International character set

Country	ASCII code (hexadecimal)												
	Hex	**23**	**24**	**40**	**5B**	**5C**	**5D**	**5E**	**60**	**7B**	**7C**	**7D**	**7E**
	Dec	**35**	**36**	**64**	**91**	**92**	**93**	**94**	**96**	**123**	**124**	**125**	**126**
U.S.A.		#	$	@	[	\	]	^	`	{	¦	}	~
France		#	$	à	°	ç	§	^	`	é	ù	è	¨
Germany		#	$	§	Ä	Ö	Ü	^	`	ä	ö	ü	ß
U.K.		£	$	@	[	\	]	^	`	{	¦	}	~
Denmark I		#	$	@	Æ	Ø	Å	^	`	æ	ø	å	~
Sweden		#	¤	É	Ä	Ö	Å	Ü	é	ä	ö	å	ü
Italy		#	$	@	°	\	é	^	ù	à	ò	è	ì
Spain		Pt	$	@	¡	Ñ	¿	^	`	¨	ñ	}	~
Japan		#	$	@	[	¥	]	^	`	{	¦	}	~
Norway		#	¤	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü
Denmark II		#	$	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü

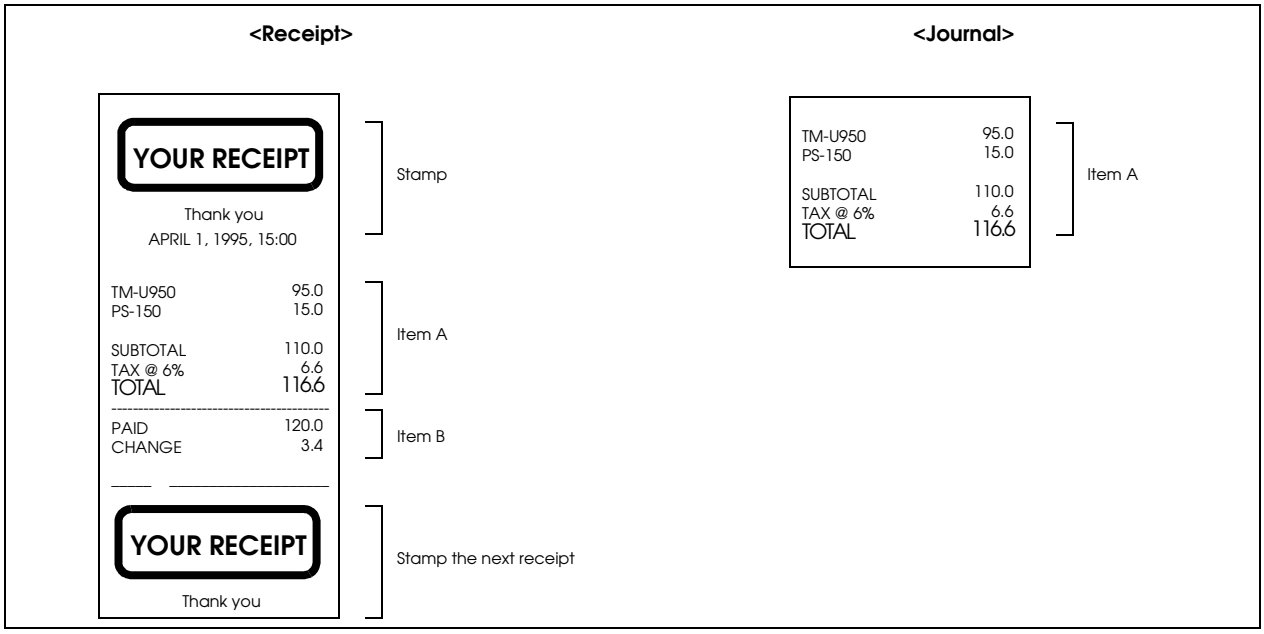
Chapter 2
Application

This chapter presents an example illustrating ESC/POS command functions and printing results. The example shows how to print the same data on both receipt and journal paper.

Combining Receipt and Journal Printing

Procedure	Commands used	Description
1. Define stamp data	**GS ***	Defines the stamp data. (**GS ***| defines a user-defined bit image of the data.)
2. Print stamp data	**ESC c 0 , ESC a, GS / , ESC J**	Prints the stamp data on receipt paper after **ESC a** centers the print position.
3. Print item A	**ESC a , ESC c 0** **ESC z , ESC ! , LF** **ESD d**	Selects left justification after printing the date and time. Selects both receipt and journal paper for printing. Prints item A after turning on parallel printing mode.
4. Print item B	**ESC c 0 , ESC z** **ESC ! , LF, ESC d**	Turns off parallel printing mode. Prints item B after selecting receipt paper for printing.
5. Print stamp data	**ESC c 0 , ESC a** **GS / , ESC J**	Prints the stamp data on the next receipt after **ESC a** centers the print position. Advances the paper to the auto-cutter position.
6. Cut receipt	**ESC i**	Cuts the paper.

Print Sample



Program Example

```
PRINT #1, CHR$(&H1D);"*";CHR$(30);CHR$(6);
FOR i=1 TO 1440
  READ a$
  PRINT #1, CHR$(VAL("&H"+a$));
NEXT i

GOSUB stamp ← Prints stamp data

PRINT #1, "APRIL 1, 1995 15:00";
PRINT #1, CHR$(&H1B);"d";CHR$(3);
PRINT #1, CHR$(&H1B);"a";CHR$(0); ← Selects left print position
PRINT #1, CHR$(&H1B);"c0";CHR$(3); ← Selects receipt and journal paper for printing
PRINT #1, CHR$(&H1B);"z";CHR$(1); ← Turns on parallel printing mode
PRINT #1, CHR$(&H1B);"!";CHR$(&H0);
PRINT #1, "TM-U950              95.0"; CHR$(&HA);
PRINT #1, "PS-150                15.0"; CHR$(&HA);
PRINT #1, CHR$(&HA);
PRINT #1, "SUBTOTAL             110.0"; CHR$(&HA);
PRINT #1, "TAX @ 6%              6.6"; CHR$(&HA);
PRINT #1, CHR$(&H1B);"!";CHR$(&H10); ← Selects double-height mode
PRINT #1, "TOTAL                116.6"; CHR$(&HA);
PRINT #1, CHR$(&H1B);"!";CHR$(&H0); ← Resets double-height mode
PRINT #1, "------------------------------"; CHR$(&HA);

PRINT #1, CHR$(&H1B);"z";CHR$(0); ← Turns off parallel printing mode
PRINT #1, CHR$(&H1B);"c0";CHR$(2); ← Selects receipt paper for printing
PRINT #1, "PAID                 120.0"; CHR$(&HA);
PRINT #1, "CHANGE                 3.4";
PRINT #1, CHR$(&H1B);"d";CHR$(6);

GOSUB stamp ← Prints stamp data
PRINT #1, CHR$(&H1B);"i"; ← Cuts the paper
END

stamp:
PRINT #1, CHR$(&H1B);"c0";CHR$(2); ← Selects receipt paper for printing
PRINT #1, CHR$(&H1B);"a";CHR$(1); ← Selects center print position
PRINT #1, CHR$(&H1D);"/";CHR$(1);
PRINT #1, CHR$(&H1B);"J";CHR$(10);
PRINT #1, "Thank you";
PRINT #1, CHR$(&H1B);"J";CHR$(30);
RETURN

(Any additional data is omitted from the user-defined bit image.)
```

Defines user-defined bit image

Prints Item A

Prints Item B

Prints user-defined bit image

Chapter 3
Command Reference

Command Classification

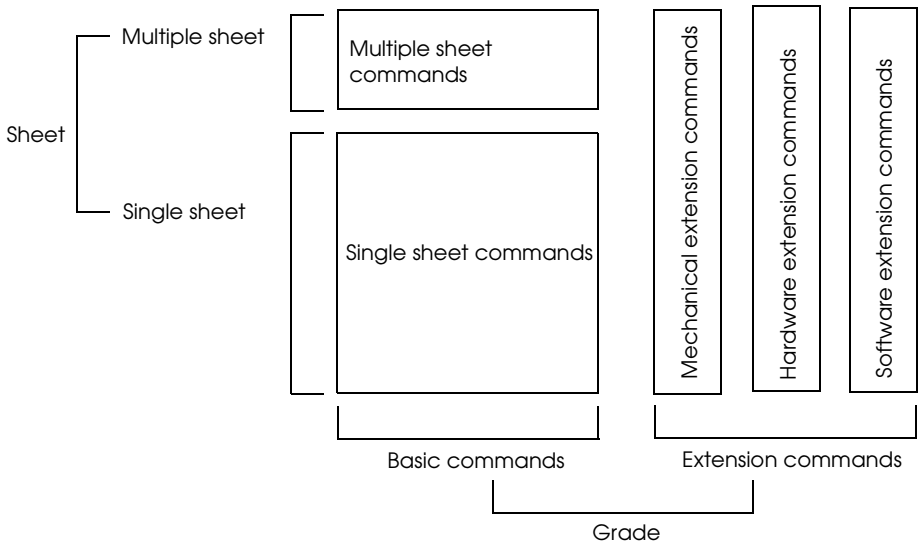
ESC/POS printer commands in this chapter are classified by function and by *sheet* and *grade*. The sheet and grade classification is called *matrix classification*.

The *sheet* classification is divided into *single sheet commands* and *multiple sheet commands*. The *grade* classification is separated into *basic commands* and *extension commands*.

Basic commands are defined as fundamental printer controls, including print commands and character type selection commands. *Extension commands* are defined as control codes for functions specific to individual printers. These commands are further divided into *mechanical extension commands* that relate to additional mechanical functions such as stamp and auto-cutter units, *hardware extension commands* that relate to additional hardware functions such as panel button control, and *software extension commands* that relate to additional software functions such as user-defined and Kanji character control.

The commands can also be classified by function, which is how they are presented in Chapter 1 and the Function Type table in this chapter. The function types, such as Print Commands and Line Spacing Commands, are briefly explained in the corresponding sections of Chapter 1.

The illustration below shows the ESC/POS command overview diagram for printers.



Function Type

Function Type	Command	Name	Matrix Category	Supported Command
Print commands	**LF**	Print and line feed	Basic single	○
	FF	1. Print and eject slip paper (in standard mode)	Mechanical extension	○
		2. Print and return to standard mode (in page mode)	Mechanical extension	
		3. Print and feed label to print starting position (in label mode)	Mechanical extension	
	CR	Print and carriage return	Mechanical extension	○
	ESC FF	Print data in page mode	Software extension	
	ESC J	Print and feed paper	Mechanical extension	○
	ESC K	Print and reverse feed	Mechanical extension	○
	ESC d	Print and feed ***n*** lines	Basic single	○
	ESC e	Print and reverse feed ***n*** lines	Mechanical extension	○
	GS FF	Print and eject label	Hardware extension	
Line spacing commands	**ESC 2**	Select 1/6–inch line spacing	Mechanical extension	○
	ESC 3	Set line spacing	Mechanical extension	○
	ESC C	Set slip paper eject length	Mechanical extension	○
Character commands	**CAN**	Cancel print data in page mode	Software extension	
	ESC SP	Set right-side character spacing	Basic single	○
	ESC !	Select print mode(s)	Basic single	○
	ESC %	Select/cancel user-defined character set	Software extension	○
	ESC &	Define user-defined characters	Software extension	○
	ESC –	Turn underline mode on/off	Software extension	○
	ESC ?	Cancel user-defined characters	Software extension	○
	ESC E	Turn emphasized mode on/off	Software extension	○
	ESC G	Turn double-strike mode on/off	Software extension	○
	ESC R	Select an international character set	Basic single	○
	ESC V	Turn 90° clockwise rotation mode on/off	Software extension	
	ESC r	Select print color	Mechanical extension	
	ESC t	Select character code table	Basic single	○

The TM-U950/U950P supports the commands marked with a ○ in the "Supported Command" column.
The TM-U950/U950P with the MICR option supports the commands marked with a ● in the "Supported Command" column.

Function Type	Command	Name	Matrix Category	Supported Command
Character commands (continued)	**ESC z**	Turn parallel printing mode on/ off for receipt and journal paper	Mechanical extension	○
	ESC {	Turn upside-down printing mode on/off	Basic single	○
	GS !	Select character size	Software extension	
	GS B	Turn white/black reverse printing mode on/off	Software extension	
	GS b	Turn smoothing mode on/off	Software extension	
Printing paper commands	**ESC c 0**	Select paper type(s) for printing	Basic multiple	○
	ESC c 1	Select paper type(s) for command settings	Mechanical extension	○
	ESC f	Set slip paper wait time	Mechanical extension	○
Paper sensor commands	**ESC c 3**	Select paper sensor(s) to output paper-end signals	Mechanical extension	○
	ESC c 4	Select paper sensor(s) to stop printing	Mechanical extension	○
Print position commands	**HT**	Horizontal tab	Software extension	
	RS	Journal tab	Mechanical extension	○
	ESC $	Set absolute print position	Software extension	○
	ESC D	Set horizontal tab positions	Software extension	
	ESC T	Select print direction in page mode	Software extension	
	ESC W	Set printing area in page mode	Software extension	
	**ESC **	Set relative print position	Software extension	○
	ESC a	Select justification	Software extension	○
	GS $	Set absolute vertical print position in page mode	Software extension	
	GS L	Set left margin	Software extension	
	GS W	Set printing area width	Software extension	
	**GS **	Set relative vertical print position in page mode	Software extension	
Status commands	**DLE EOT**	Transmit real-time status	Hardware extension	○
	DLE EOT BS	Transmit real-time MICR status	Hardware extension	●
	ESC u	Transmit peripheral device status	Hardware extension	○
	ESC v	Transmit paper sensor status	Hardware extension	○

The TM-U950/U950P supports the commands marked with a ○ in the "Supported Command" column.
The TM-U950/U950P with the MICR option supports the commands marked with a ● in the "Supported Command" column.

Function Type	Command	Name	Matrix Category	Supported Command
Status commands (continued)	**GS ENQ**	Transmit real-time printer status	Hardware extension	○
	GS a	Enable/disable Automatic Status Back (ASB)	Hardware extension	○
	GS r	Transmit status	Hardware extension	○
Bit-image commands	**ESC ✻**	Select bit-image mode	Basic single	○
	GS ✻	Define user-defined bit image	Software extension	○
	GS /	Print user-defined bit image	Software extension	○
Bar code commands	**GS H**	Select printing position for HRI characters	Software extension	
	GS f	Select font for HRI characters	Software extension	
	GS h	Select bar code height	Software extension	
	GS k	Print bar code	Software extension	
	GS w	Select bar code width	Software extension	
Macro function commands	**GS :**	Start/end macro definition	Software extension	
	GS ^	Execute macro	Software extension	
Kanji control commands	**FS !**	Select print mode(s) for Kanji characters	Software extension	
	FS &	Select Kanji character mode	Software extension	
	FS –	Turn underline mode on/off for Kanji characters	Software extension	
	FS .	Cancel Kanji character mode	Software extension	
	FS 2	Define user-defined Kanji characters	Software extension	
	FS C	Select Kanji character code system	Software extension	
	FS S	Set Kanji character spacing	Software extension	
	FS W	Turn quadruple-size mode on/ off for Kanji characters	Software extension	
Mechanism control commands	**ESC <**	Return home	Mechanical extension	○
	ESC F	Set/cancel slip paper reverse eject	Mechanical extension	
	ESC U	Turn unidirectional printing mode on/off	Mechanical extension	○
	ESC i	Partial cut (one point left uncut)	Mechanical extension	○
	ESC m	Partial cut (three points left uncut)	Mechanical extension	○
	ESC o	Stamp	Mechanical extension	○

The TM-U950/U950P supports the commands marked with a ○ in the "Supported Command" column.
The TM-U950/U950P with the MICR option supports the commands marked with a ● in the "Supported Command" column.

Function Type	Command	Name	Matrix Category	Supported Command
Mechanism control commands (continued)	**ESC q**	Release	Mechanical extension	
	GS V	Cut paper	Mechanical extension	
Panel button commands	**ESC c 5**	Enable/disable panel buttons	Hardware extension	○
	ESC c 6	Enable/disable on-line switch	Hardware extension	
MICR commands	**FS a 0**	Read check paper	Mechanical extension	●
	FS a 1	Load check paper to print starting position	Mechanical extension	●
	FS a 2	Eject check paper	Mechanical extension	●
	FS b	Request retransmission of check paper reading result	Mechanical extension	●
	FS c	MICR mechanism cleaning	Mechanical extension	●
Miscellaneous function commands	**DLE ENQ**	Real-time request to printer	Software extension	○
	ESC @	Initialize printer	Basic single	○
	ESC =	Select peripheral device status	Software extension	○
	ESC L	Select page mode	Software extension	
	ESC S	Select standard mode	Software extension	
	ESC p	Generate pulse	Hardware extension	○
	FS L	Select double-density page mode	Software extension	
	GS <	Initialize printer mechanism	Mechanical extension	
	GS A	Adjust label position to start printing	Hardware extension	
	GS C 0	Select counter print mode	Software extension	
	GS C 1	Select count mode (A)	Software extension	
	GS C 2	Set counter	Software extension	
	GS C ;	Select count mode (B)	Software extension	
	GS E	Select print speed and head energizing time	Hardware extension	○
	GS I	Transmit printer ID	Hardware extension	○
	GS P	Set horizontal and vertical motion units	Software extension	○
	GS c	Print counter	Software extension	
	GS z 0	On-line/off-line recovery wait time	Software extension	

The TM-U950/U950P supports the commands marked with a O in the "Supported Command" column.
The TM-U950/U950P with the MICR option supports the commands marked with a ● in the "Supported Command" column.

Reference Table

Command	Name	Function	Supported Command																	
			TM-267II	TM-T Series				TM-L Series		TM-200		TM-300/300M				TM-270	TM-U375 TM-U375M	TM-U925	TM-U950 TM-U950M	TM-215S	TM-290II
				T60	T80	T80M	T85	L60	L60II	B	D	A	B	C	D						
HT	Horizontal tab	Moves the printing position to the next horizontal tab position.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			●	●
LF	Print and line feed	Prints the data in the print buffer and feeds the paper based on the current line spacing.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
FF	1. Print and eject slip paper (in standard mode)	Prints the data in the print buffer and ejects the slip paper.														●	●	●	●		●
	2. Print and return to standard mode (in page mode)	Prints the data in the print buffer and returns to standard mode.					●		●								●				●
	3. Print and feed label to print starting position (in label mode)	Prints the data in the print buffer and feeds the next label to the print starting position.						●	●												

The commands supported by each printer are marked by a ● or a O. The functions of the commands marked by a O may differ, depending on the printer model.

Command	Name	Function	Supported Command																	
			TM-267II	TM-T Series				TM-L Series		TM-200		TM-300/300M				TM-270	TM-U375 TM-U375M	TM-U925	TM-U950 TM-U950M	TM-215S	TM-290II
				T60	T80	T80M	T85	L60	L60II	B	D	A	B	C	D						
CR	Print and carriage return	When auto line feed is enabled, this command functions in the same way as **LF**. When auto line feed is disabled, this command prints the data in the print buffer and does not feed the paper.		○	○		○		○	●	●	●	●	●	●	○	●	●	●	●	
CAN	Cancel print data in page mode	Deletes all the print data in the printable area in page mode.					●		●								●				●
RS	Journal tab	Moves the print position to the beginning of the journal paper.																	●		
DLE EOT	Transmit real-time status	Transmits a specified status in real time.					●		●	●	●						●	●	●		
DLE EOT BS	Transmit real-time MICR status	Transmits MICR status in real time.																○	○		
DLE ENQ	Real-time request to printer	Responds to a request from the host computer upon receiving this command.					●			●	●						●	●	●		
ESC FF	Print data in page mode	Prints the data in the print buffer in page mode.					●		●												
ESC SP	Set right-side character spacing	Sets the right-side character spacing.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
The commands supported by each printer are marked by a ● or a ○. The functions of the commands marked by a ○ may differ, depending on the printer model.																					

Command	Name	Function	Supported Command																	
			TM-267II	TM-T Series				TM-L Series		TM-200		TM-300/300M				TM-270	TM-U375 TM-U375M	TM-U925	TM-U950 TM-U950M	TM-215S	TM-290II
				T60	T80	T80M	T85	L60	L60II	B	D	A	B	C	D						
ESC !	Select print mode(s)	Selects a print mode(s).	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
ESC $	Set absolute print position	Sets the print starting position from the beginning of the line.		●	●	●	●	●	●								●	●	●		
ESC %	Select/ cancel user-defined character set	Selects or cancels the user-defined character set.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
ESC &	Define user-defined characters	Defines user-defined characters for a specified character code.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
ESC *	Select bit-image mode	Selects a bit-image mode for a specified number of dots.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
ESC –	Turn underline mode on/off	Turns underline mode on or off.				●	●	●	●	●	●	○	○	○	○		●	●	●		
ESC 2	Select 1/6-inch line spacing	Sets the line spacing to 1/6 inch.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
ESC 3	Set line spacing	Sets the line spacing to a specified value.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
ESC <	Return home	Moves the print head to the left-most position.								●	●	●	●	●	●		●	●	●		
ESC =	Select peripheral device	Selects the device to which the host computer sends data.		●	●	●	●	●	●								●	●	●		

The commands supported by each printer are marked by a ● or a O. The functions of the commands marked by a O may differ, depending on the printer model.

Command	Name	Function	Supported Command																	
			TM-267II	TM-T Series				TM-L Series		TM-200		TM-300/300M				TM-270	TM-U375 TM-U375M	TM-U925	TM-U950 TM-U950M	TM-215S	TM-290II
				T60	T80	T80M	T85	L60	L60II	B	D	A	B	C	D						
ESC ?	Cancel user-defined characters	Cancels the user-defined characters for a specified character code.					●		●	●	●						●	●	●		
ESC @	Initialize printer	Clears the data in the print buffer and resets the printer mode to the mode that was in effect when the power was turned on.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
ESC C	Set slip paper eject length	Sets the eject length for slip paper to a specified number of lines.														●	●	●	●		●
ESC D	Set horizontal tab positions	Sets the horizontal tab positions.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			●	●
ESC E	Turn emphasized mode on/off	Turns emphasized mode on or off.				●	●	●	●	●	●	○	○	○	○		●	●	●		
ESC F	Set/cancel slip paper reverse eject	Sets or cancels the slip paper reverse eject specified by **FF**.																			●
ESC G	Turn double-strike mode on/off	Turns double-strike mode on or off.				●	●	●	●	●	●	○	○	○	○		●	●	●		
ESC J	Print and feed paper	Prints the data in the print buffer and feeds the paper a specified distance.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
ESC K	Print and reverse feed	Prints the data in the print buffer and feeds the paper a specified distance in the reverse direction.								●	●				●			●	●		●
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Command	Name	Function	Supported Command																	
			TM-267II	TM-T Series				TM-L Series		TM-200		TM-300/300M				TM-270	TM-U375 TM-U375M	TM-U925	TM-U950 TM-U950M	TM-215S	TM-290II
				T60	T80	T80M	T85	L60	L60II	B	D	A	B	C	D						
ESC L	Select page mode	Switches from standard mode to page mode.					●		●								●				●
ESC R	Select an international character set	Selects a country's character set.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
ESC S	Select standard mode	Switches from page mode to standard mode.					●		●												
ESC T	Select print direction in page mode	Selects the print direction and starting position in page mode.					●		●								●				●
ESC U	Turn unidirectional printing mode on/off	Turns unidirectional printing mode on or off.								●	●	●	●	●	●		●	●	●	●	
ESC V	Turn 90° clockwise rotation mode on/off	Turns 90° clockwise rotation mode on or off.		●	●	●	●	●	●							●	●				
ESC W	Set printing area in page mode	Sets the position and the size of the printing area in page mode.					●		●								●				●
**ESC **	Set relative print position	Sets the print starting position based on the current position.		●	●	●	●	●	●								●	●	●		
ESC a	Select justification	Aligns all the data in one line to a specified position.		●	●	●	●	●	●	●	●						●	●	●		
ESC c 0	Select print paper(s)	Selects paper type(s) for printing.												●	●	●	●	●	●		

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Command	Name	Function	Supported Command																	
			TM-267II	TM-T Series				TM-L Series		TM-200		TM-300/300M				TM-270	TM-U375 TM-U375M	TM-U925	TM-U950 TM-U950M	TM-215S	TM-290II
				T60	T80	T80M	T85	L60	L60II	B	D	A	B	C	D						
ESC c 1	Select paper type(s) for command settings	Selects paper type(s) for use with various command settings.														●	●	●	●		
ESC c 3	Select paper sensor(s) to output paper-end signals	Selects paper sensor(s) to output paper-end signals.		○	○		○		○	○	○	○	○	○	○	○			○		
ESC c 4	Select paper sensor(s) to stop printing	Selects the paper sensor that stops printing when the paper runs out.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●
ESC c 5	Enable/ disable panel buttons	Enables or disables the panel buttons.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●
ESC c 6	Enable/ disable on-line switch	Enables or disables the ON-LINE switch.	●													●					
ESC d	Print and feed ***n*** lines	Prints the data in the print buffer and feeds ***n*** lines.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●
ESC e	Print and reverse feed ***n*** lines	Prints the data in the print buffer and feeds ***n*** lines in the reverse direction.								●	●				●			●	●		●
ESC f	Set slip paper wait time	Sets the time that the printer waits for slip paper to be inserted and the time from detecting the slip until printing starts.												○	○	●	●	●	●		●
ESC i	Partial cut (one point left uncut)	Executes a partial cut of the paper with one point left uncut.	●		●	●	●			●		●	●					●	●		

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Command	Name	Function	Supported Command																	
			TM-267II	TM-T Series				TM-L Series		TM-200		TM-300/300M				TM-270	TM-U375 TM-U375M	TM-U925	TM-U950 TM-U950M	TM-215S	TM-290II
				T60	T80	T80M	T85	L60	L60II	B	D	A	B	C	D						
ESC m	Partial cut (three points left uncut)	Executes a partial cut of the paper with three points left uncut.	●		●	●						●	●					●	●		
ESC o	Stamp	Executes stamp printing.																●	●		
ESC p	Generate pulse	Sends a specified pulse to a specified connector pin.		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
ESC q	Release	Releases the paper.														●	●				●
ESC r	Select print color	Selects the print color.	●									●	●	●	●					●	
ESC t	Select character code table	Selects a page from the character code table.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
ESC u	Transmit peripheral device status	Transmits the status of a specified connector pin.		○	○	●	●	●	●			○	○	○	○	○	●	●	●	●	●
ESC v	Transmit paper sensor status	Transmits the status of a paper sensor.	●	○	○	●	●	●	●			○	○	○	○	○	●	●	●	●	●
ESC z	Turn parallel printing mode on/off for receipt and journal paper	Turns parallel printing mode on or off for receipt and journal paper.																	●		
ESC {	Turn upside-down printing mode on/off	Turns upside-down printing mode on or off.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

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Command	Name	Function	Supported Command																	
			TM-267II	TM-T Series				TM-L Series		TM-200		TM-300/300M				TM-270	TM-U375 TM-U375M	TM-U925	TM-U950 TM-U950M	TM-215S	TM-290II
				T60	T80	T80M	T85	L60	L60II	B	D	A	B	C	D						
FS !	Select print mode(s) for Kanji characters	Selects print mode(s) for Kanji characters.				●						○	○	○	○		○		○		
FS &	Select Kanji character mode	Selects Kanji character mode.				●						○	○	○	○		○		○		
FS –	Turn underline mode on/off for Kanji characters	Turns underline mode on or off for Kanji characters.				●						○	○	○	○		○		○		
FS .	Cancel Kanji character mode	Cancels Kanji character mode.				●						○	○	○	○		○		○		
FS 2	Define user-defined Kanji characters	Defines user-defined Kanji characters for specified character codes.				●						○	○	○	○		○		○		
FS C	Select Kanji character code system	Selects the Kanji character code system.				●						○	○	○	○		○		○		
FS L	Select double-density page mode	Switches from standard mode to double-density page mode.															○				
FS S	Set Kanji character spacing	Selects the right- and left-side Kanji character spacing.				●						○	○	○	○		○		○		
FS W	Turn quadruple-size mode on/off for Kanji characters	Turns quadruple-size mode on or off for Kanji characters.				●						○	○	○	○		○		○		

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Command	Name	Function	Supported Command																	
			TM-267II	TM-T Series				TM-L Series		TM-200		TM-300/300M				TM-270	TM-U375 TM-U375M	TM-U925	TM-U950 TM-U950M	TM-215S	TM-290II
				T60	T80	T80M	T85	L60	L60II	B	D	A	B	C	D						
FS a 0	Read check paper	Selects the MICR function and reads the check paper.																○	○		
FS a 1	Load check paper to print starting position	Loads check paper to the print starting position.																○	○		
FS a 2	Eject check paper	Ejects the check paper.																○	○		
FS b	Request retransmission of check paper reading result	Retransmits the previous check paper (MICR character) reading results.																○	○		
FS c	MICR mechanism cleaning	Cleans the MICR mechanism.																○	○		
GS ENQ	Transmit real-time printer status	Transmits the status of the printer upon receiving this command.																●	●		
GS FF	Print and eject label	Prints the data in the print buffer and ejects the label.						●	●												
GS !	Select character size	Selects the character width and height.					●		●												
GS $	Set absolute vertical print position in page mode	Sets the absolute vertical print starting position for characters in page mode.					●		●												
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			TM-267II	TM-T Series				TM-L Series		TM-200		TM-300/300M				TM-270	TM-U375 TM-U375M	TM-U925	TM-U950 TM-U950M	TM-215S	TM-290II
				T60	T80	T80M	T85	L60	L60II	B	D	A	B	C	D						
GS *	Define user-defined bit image	Defines a user-defined bit image using a specified number of dots.		●	●	●	●	●	●								●	●	●		
GS /	Print user-defined bit image	Prints a user-defined bit image using a specified mode.		●	●	●	●	●	●								●	●	●		
GS :	Start/end macro definition	Starts or ends a macro definition.		●	●	●	●	●	●												
GS <	Initialize printer mechanism	Feeds a label to the print starting position.						●	●												
GS A	Adjust label position to start printing	Sets the label position relative to the default position.						●	●												
GS B	Turn white/ black reverse printing mode on/off	Turns white/black reverse printing mode on or off.					●		●												
GS C 0	Set counter print mode	Selects a print mode for the serial counter.						●	●												
GS C 1	Select count mode (A)	Selects a count mode for the serial counter.						●	●												
GS C 2	Set counter	Sets the counter value.						●	●												
GS C ;	Select count mode (B)	Selects a count mode for the serial counter and specifies the counter value.						●	●												
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			TM-267II	TM-T Series				TM-L Series		TM-200		TM-300/300M				TM-270	TM-U375 TM-U375M	TM-U925	TM-U950 TM-U950M	TM-215S	TM-290II
				T60	T80	T80M	T85	L60	L60II	B	D	A	B	C	D						
GS E	Select print speed and head energizing time	Selects the print speed and head energizing time.										●	●	●	●		●	●	●		
GS H	Select printing position for HRI characters	Selects the printing position of HRI characters when printing a bar code.		●	●	●	●	●	●												
GS I	Transmit printer ID	Transmits a specified printer ID.					●		●	●	●						●	●	●		
GS L	Set left margin	Sets the left margin using specified values.					●		●								●				
GS P	Set horizontal and vertical motion units	Sets the horizontal and vertical motion units.					●		●								●	●	●		
GS V	Cut paper	Cuts the specified paper.					●			●											
GS V	Cut paper	Advances the specified paper to the cut position and performs the cut.					●			●	●										
GS W	Set printing area width	Sets the printing area width to a defined area.					●		●								●				
**GS **	Set relative vertical print position in page mode	Moves the vertical print starting position in page mode to a specified distance from the current position.					●		●												
GS ^	Execute macro	Executes a macro.		●	●	●	●	●	●												

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			TM-267II	TM-T Series				TM-L Series		TM-200		TM-300/300M				TM-270	TM-U375 TM-U375M	TM-U925	TM-U950 TM-U950M	TM-215S	TM-290II
				T60	T80	T80M	T85	L60	L60II	B	D	A	B	C	D						
GS a	Enable/ disable Automatic Status Back (ASB)	Selects a status for ASB transmission.					●		●	●	●						●	●	●		
GS b	Turn smoothing mode on/off	Selects or cancels smoothing.					●		●												
GS c	Print counter	Selects a serial counter value in the print buffer and increments or decrements the counter value.						●	●												
GS f	Select font for HRI characters	Selects a font for the HRI characters used when printing a bar code.		●	●	●	●	●	●												
GS h	Select bar code height	Selects the height of a bar code.		●	●	●	●	●	●												
GS k	Print bar code	Selects a bar code system and prints the bar code.		●	●	●	●	●	●												
GS k	Print bar code	Selects a bar code system and prints the bar code, processing a specified amount of bar code data.					●		●												

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Command	Name	Function	Supported Command																	
			TM-267II	TM-T Series				TM-L Series		TM-200		TM-300/300M				TM-270	TM-U375 TM-U375M	TM-U925	TM-U950 TM-U950M	TM-215S	TM-290II
				T60	T80	T80M	T85	L60	L60II	B	D	A	B	C	D						
GS r	Transmit status	Transmits a specified status.					●		●	●	●						●	●	●		
GS w	Select bar code width	Selects the horizontal size of the bar code.		●	●	●	●	●	●												
GS z 0	On-line/off-line recovery wait time	Sets the on-line/off-line recovery wait time.								●	●										
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